

ENFIELD INLAND WETLAND & WATERCOURSES AGENCY

TUESDAY, APRIL 6, 2010

*****REGULAR MEETING @ 7:00 PM*****

*****PUBLIC HEARING to follow (if applicable)*****

*****Council Chambers*****

**ENFIELD TOWN HALL
820 ENFIELD STREET
ENFIELD, CT**

INFORMATION PACKET

AGENDA
MEETING OF THE
ENFIELD INLAND WETLANDS AND WATERCOURSES AGENCY
TUESDAY, APRIL 6, 2010 – **7:00 pm**
REGULAR MEETING

*******Council Chambers*******

***** ENFIELD TOWN HALL *****
*** 820 ENFIELD STREET***
** ENFIELD, CT 06082 **

REGULAR MEETING

1. Call to Order
2. Roll Call
3. Pledge of Allegiance
4. Executive Session
(Matters regarding specific employees, pending litigation, acquisition of real estate and / or matters exempt from disclosure requirements)
5. Public Hearing
 - a. **XIW-10-04 – Town of Enfield Public Works** – is requesting a permit to reconstruct and enlarge the South Maple Street Bridge over the Scantic River (Map 84, Lots 7, 12, 14 and 21). Submitted March 3, 2010, received 3/16/10, PPE 3/30/10, **MAD 5/20/10.**
6. Call to Order of Regular Meeting
7. Public Participation - Issues of concern not on the agenda
8. Correspondence
 - a. Public Works Correspondence Regarding Sharp Street
 - b. "Legislature Restores Consideration of Wildlife to Inlands and Watercourses Act" Article
 - c. ERT Program Update
 - d. "Wetlands In the Courts – Recent Cases" Handout
 - e. DEP 2009 Legislation and Regulations Advisory
 - f. "Notification of Timber Harvest Form"
 - g. "The Habitat"
9. Commissioner's Correspondence
 - a. Site Visit Updates
10. Approval of Minutes – February 2, 2010 & March 16, 2010
11. Wetlands Agent Report

12.Old Business

- a. **IW-534– Enfield Properties** – is requesting a permit to construct two office buildings and five residential apartment buildings 153 South Road and adjacent lots (Map 55, Lots 80, 93 & 99), within the regulated area.
Submitted 12/15/09, received 12/15/09, PPE 12/29/09, MPHCD 2/23/10,
EMPHCD 3/16/10.

13.New Business

14.New Applications to be Received

- a. Applications to be received after Town deadline for Agenda

15.Other Business

- a. IWWA Fines Ordinance
- b. IWWA Fee Schedule
- c. IWWA Regulation Revisions
- d. **Next regular meeting is Tuesday, April 20, 2010 at 7:00PM in the Council Chambers.**

16.Adjourn

Acronym Key for Dates:

Submitted	= Day it was Logged in by the Appropriate Town Office.
Rec'd	= Received (Date of First Regular Meeting after the day of submission or 35 days, which ever is sooner)
PPE	= Petition Period Ends (14 Days from Receipt)
MAD	= Mandatory Action Date (65 Days from Receipt)
EMAD	= Extended Mandatory Action Date (Any combination up to 65 days from original MAD)
MPHCD	= Mandatory Public Hearing Closing Date (35 Days from opening of the public hearing)
EMPHCD	= Extended Mandatory Public Hearing Closing Date (Any combination up to 65 Days from first MPHCD)
MPHAD	= Mandatory Public Hearing Action Date (35 Days after close of the public hearing)
EMPHAD	= Extended Mandatory Public Hearing Action Date (Any combination up to 65 Days from first MPHAD)

*Applicant can consent to extend the time frame for any of the steps but the total of all extensions together cannot exceed 65 days

PUBLIC HEARING
XIW-10-04 Town of Enfield Public Works

Memo

To: Enfield Inland Wetlands and Watercourses Agency
From: Katie Bednaz, Assistant Town Planner/Wetlands Agent
CC: Applicant
Date: March 31, 2010
Re: Agent Review for XIW-10-04 – South Maple Street Bridge

The following are my review comments and observations regarding the Inland Wetland and Watercourses Application XIW-10-04 for the South Maple Street Bridge Reconstruction, plans entitled "Town of Enfield Construction Plans for Replacement of Bridge No. 03972, South Maple Street Over Scantic River from Sta. 10+50.00 to Sta. 15-59.25, Length 509.25 Feet", dated 3/5/10 and 3/8/10, sheets 1-32. In addition the application package and supporting data as submitted and included in the application file has been reviewed.

- 1) The Inland Wetlands application number should be located on all plan sheets.
- 2) The following application requirements must be completed:
 - a. According to Section 7.5 b. of the Inland Wetlands and Watercourses Regulations (IWWR) "The land owner's name, address and telephone number and written consent if the applicant is not the owner of the property involved in the application;"
 - b. According to Section 7.5 h. "Names and addresses of abutting property owners as of date no earlier than 30 days before the date the application is submitted to the Agency;"
 - c. According to Section 7.6 c. "The soil scientist shall prepare a report that includes the name of the applicant and project, the location of any limits of the property investigated, the dates of the soil investigations, a brief soil description of each soil mapping unit investigated, the set of the consecutive numbers used on survey types to identify the wetland boundaries appearing on the site plan are to the best of his knowledge true and accurate;" It is also requested that the signature and certification by the soil scientist be located on the project plans where the existing conditions are shown.
- 3) Grading and the limits of clearing should be shown for all of the catch basin outfalls.
- 4) The limit of the Upland Review Area (URA) needs to be clearly shown on the project plans.
- 5) The existing tree line should be shown to the south of the proposed parking area so that the extent of disturbance can be better evaluated.
- 6) The "Wetland Impacts & Mitigation" page of the application states that there will be wildlife habitat accommodation on the north embankment. Please elaborate on what the accommodations are.

It also states that "Placement of natural streambed materials over the riprap" will be done as a mitigation measure. Please explain how this will be accomplished.

- 7) Indicate on plans where materials will be stored and how they will be contained. The storage area shall contain a designated concrete washout containment area. Concrete washout can be harmful to wildlife and water quality, therefore it is recommended that it be properly controlled.
- 8) All portable restrooms or other fluid filled equipment are recommended to be stored 100 feet from any resource areas. It is recommended that this be specified on the project plans.
- 9) The typical erosion control detail needs to be shown on the plans. It is recommended that haybales and silt fence be required within 100 feet of the Scantic River.

As always, please contact me with any questions or concerns.

Bednaz, Katie

X1W-10-04

From: Michael S. Caronna [mcaronna@ncdhd.org]
Sent: Wednesday, March 31, 2010 1:15 PM
To: Cabibbo, John; Hawkes, Piya
Cc: Giner, Jose; Bednaz, Katie
Subject: FW: Maple St Bridge, Enfield

FYI

From: Michael S. Caronna [mailto:mcaronna@ncdhd.org]
Sent: Wednesday, March 31, 2010 1:06 PM
To: 'hhaouchine@tectonicengineering.com'
Subject: RE: Maple St Bridge, Enfield

Addendum – Houcine: Subsequent to writing the report noted below, I reviewed a report dated 1/19/2010 from the Connecticut Water Company regarding protection of the aquifer from potential hazardous waste spills. I concur with their recommendation and suggest that the notes be placed on the plan as a requirement such that the contractor will be aware of the site conditions and the need to take precaution.

From: Michael S. Caronna [mailto:mcaronna@ncdhd.org]
Sent: Wednesday, March 31, 2010 12:49 PM
To: 'hhaouchine@tectonicengineering.com'
Subject: Maple St Bridge, Enfield

Houcine: Our Dept. has received and reviewed a plan for the replacing of the bridge over the Scantic River at South Maple St. and Powder Hill Rd.

The plan as submitted was prepared by Tectonic Engineering & Surveying Consultants P.C., consisted of two pages numbered CON-1, dated 3/3/2010 and PRO- 1, dated 3/2/2010.

Per our discussion and as the plan shows there are no known water supply wells or septic systems in the area of the proposed work. Further as per our discussion our Dept. is not aware of the location of water supply wells or septic systems in the immediate area of the construction.

Therefore at this time our Dept. has no further comments regarding this construction project. If you have need of further assistance please contact me - Michael.

Michael S. Caronna, R.S., M.P.H.
Director of Environmental Services
North Central District Health Dept.
31 North Main Street
P.O. Box 1222, Enfield Ct. 06083
860-745-0383, fax: 860-745-3188
mcaronna@ncdhd.org

3/31/2010



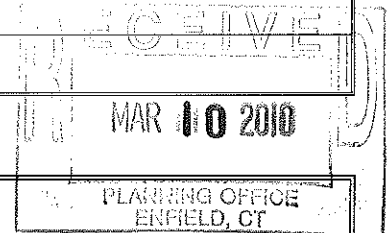
Flood Management Certification Program for Municipal Projects Funded¹ by the Department of Transportation

XI 10-10-04

Projects eligible for this certification program, as identified in the Memorandum of Understanding (MOU) between the Departments of Transportation and Environmental Protection (03/18/2009), shall be reviewed by the Department of Transportation for consistency with Section 25-68d (b) of the Connecticut General Statutes² and Sections 25-68h-1 through 25-68h-3 of the Regulations of Connecticut State Agencies (RCSA)³ and approval shall be in accordance with the MOU. This program shall not apply to projects that qualify for the Department of Transportation Flood Management General Certification Program nor shall it be construed as a substitute for any other flood management or permit approval process that may be required by the municipality.

1. Project Identification

ConnDOT Project No(s).	(PE) 48-192	(Construction)	City/Town(s) Enfield
Project Name	South Maple Street Over Scantic River		



2. Funding Source

Check the funding source(s) for the subject project from the eligible list below:	
<input type="checkbox"/> State Local Bridge Program: DOT Br. No(s).	<input type="checkbox"/> STP – Urban Program
<input type="checkbox"/> Federal Local Bridge Program: DOT Br. No(s).	<input type="checkbox"/> STP – Rural Minor / Major Collector Program
<input type="checkbox"/> Small Town Economic Assistance Program	<input type="checkbox"/> Local Roads Accident Reduction Program
<input type="checkbox"/> Transportation Enhancement Program	<input checked="" type="checkbox"/> Federal Earmark Project
	<input type="checkbox"/> CT Special Act Grant
	<input type="checkbox"/> Safe Routes to School Program

3. Quality Assurance/Quality Control

The intent of this document is to assist the applicant as well as the reviewer with the regulatory requirements, process, scope and the completeness of the documentation for the flood management certification of a project. Failure to complete this document in its entirety and/or to provide the information indicated therein will result in rejection of the flood management submission and a possible delay in the project.			
Enter contact information and signature of the person responsible for preparing this document and the completeness of the submission below:			
Name	Company Name		
Jeffrey A. Scala, P.E.	Tectonic Engineering		
Mailing Address	City/Town	State	Zip Code
1344 Silas Deane Highway	Rocky Hill	Ct	06067
Telephone No.	Fax No.	Email address	
860.563.2341	860.257.4882	jscala@tectonicengineering.com	
Date Prepared		Signature	
12/08/2009			
<input checked="" type="checkbox"/> Check this box if this document has been prepared by the ConnDOT Approved Hydraulic Engineer who shall be responsible for the submission content. The Approved Hydraulic Engineer shall need only date and sign this section, provided the other contact information is the same as in Section 7, Hydraulic Engineer Approval.			

¹ Federal or state funding passed to municipalities by ConnDOT

² http://cga.ct.gov/lco/Statute_Web_Site_LCO.htm

³ <http://www.ct.gov/dep/cwp/view.asp?a=2704&q=323518>

4. Other Permits/Authorizations/Certifications

This section should be completed in conjunction with Section 8, *Flooding Source Identification & Floodplain Determination*, Section 9, *Floodplain Involvement*, and Section 10, *Environmental Considerations*.

Check for other permits/authorizations/certifications required for the subject project:

ConnDOT Flood Management General Certification – The general certification applies to certain minor activities in a regulatory floodplain and is separate from the Flood Management Certification Program for Municipal Projects. The application form and descriptions of approved activities for the general certification are available on the Hydraulics and Drainage (H & D) website (<http://www.ct.gov/dot/cwp/view.asp?a=2303&q=300868>)

☒ The descriptions of approved activities of the general certification have been reviewed. The subject project does not qualify for the Flood Management General Certification.

DEP Inland Water Resources Div. (IWRD): ☐ NO IWRD PERMITS REQUIRED

http://www.ct.gov/dep/cwp/view.asp?a=2709&q=324222&depNav_GID=1643

Permit Type	Date Approved	Permit Type	Date Approved
<input type="checkbox"/> Inland Wetlands & Watercourses		<input type="checkbox"/> Dam Construction	
<input type="checkbox"/> Stream Channel Encroachment Line*		<input checked="" type="checkbox"/> 401 Water Quality Certification	
<input type="checkbox"/> Water Diversion		<input type="checkbox"/> General Permit - <i>Indicate type below</i>	

*A listing of SCEL regulated areas is provided at the H & D website @ <http://www.ct.gov/dot/cwp/view.asp?a=2303&q=300868>

Type:

☐ Any project that requires an *Inland Wetlands & Watercourses*, *Stream Channel Encroachment Line* or *Water Diversion* permit from the DEP is not eligible for this program. The project must be submitted to the DEP in accordance with the MOU.

DEP (Other Permits):

Date Approved

☒ Aquifer Protection Area (http://www.ct.gov/dep/cwp/view.asp?a=2709&q=324222&depNav_GID=1643)

unknown

☐ Stormwater and Dewatering Wastewaters from Construction Activities (a.k.a. Stormwater Discharge)
http://www.ct.gov/dep/cwp/view.asp?a=2709&q=324212&depNav_GID=1643#StormwaterConstructionGP

DEP Office of Long Island Sound Programs (OLISP): ☒ NO OLISP PERMITS REQUIRED

http://www.ct.gov/dep/cwp/view.asp?a=2709&q=324222&depNav_GID=1643

Permit Type	Date Approved	Permit Type	Date Approved
<input type="checkbox"/> Structures, Dredging and Fill & Tidal Wetlands		<input type="checkbox"/> Certificate of Permission	
<input type="checkbox"/> OLISP General Permit – <i>Indicate type</i>	Type:		

U.S. Army Corps of Engineers (Corps):

☐ NO CORPS PERMIT REQUIRED

<http://www.nae.usace.army.mil/reg/index.htm>

Permit Type	Date Approved
<input type="checkbox"/> Programmatic General Permit (PGP) <input checked="" type="checkbox"/> Category 1 <input type="checkbox"/> Category 2	
<input type="checkbox"/> Individual	

Municipal Permits:

Permit Type	Date Approved	Permit Type	Date Approved
Inland Wetlands			

05/2009

6. Significant Impacts

Any project or activity considered a significant impact as defined under Section 25-68h-1 of the Flood Management Regulations for State Agencies is not eligible for this program. Complete this section to determine if the project includes a significant activity as defined in the regulations.

Yes	No	Does the project include any activity that would create/cause:
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. A five percent increase in peak flow rates at any downstream point
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. A twenty percent increase in flow velocities or a change that allows a stable condition to become unstable
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. An unacceptable cumulative impact
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. Flooding on developed property not currently subject to flooding
<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. A downstream dam to become unsafe

☐ If the answer is yes to one or more of the above, the project includes a significant activity as defined in the regulations and is not eligible for this program. The project shall be submitted to the DEP in accordance with the MOU.

7. Hydraulic Engineer Approval

In order to be eligible for this program, the engineer responsible for preparing the hydraulic analysis and design and the flood management certification for the project must be pre-approved by the Department in accordance with Section 404.01 of the Department's Consultant Administration And Project Development Manual and Section 1.2.4 of the Drainage Manual. Enter the information for the approved Hydraulic Engineer below:

Name	CT PE Number	Company Name	
Manish Gupta, P.E.	17919	GM2 Associates	
Mailing Address	City/Town	State	Zip Code
730 Hebron Avenue	Glastonbury	CT	06033
Telephone No.	Fax No.	Email address	
860. 659-1416	860.657-2926	jmkgupta@gm2inc.com	
Approval Request Date		Date Approved	
08/14/2009		10/9/2009	

8. Flooding Source Identification & Floodplain Determination

State Flood Management Certification (FMC) is required for projects proposing activities within mapped, 1-percent annual chance (100-Year) floodplains, designated as Zone A, AE, or A-numbered and V or VE (coastal floodplains) FEMA Flood Hazard Zones where the drainage area of the flooding source is greater than or equal to one square mile.

Note: FMC is not required for proposed activities in:

- *mapped* floodplains where the drainage area of the flooding source is *less* than one square mile, or
- *unmapped* floodplains with drainage areas greater than or equal to one square mile *unless* changes in drainage patterns are proposed.

The floodplain designation and drainage area at the project site(s) shall be verified by completing the following section:

Flooding Source	Site 1	Site 2	Site 3
Site Description (ex. Br. No., Sta., etc.)	Bridge No. 03972		
Name of Stream or Waterbody	Scantic River		
Drainage Area @ Site	69.7 square miles		
<input checked="" type="checkbox"/> Copies of the drainage area delineation(s) must be attached and included in the preliminary hydrologic and hydraulic design reports.			
FEMA Flood Insurance Study (FIS) Data. Downloads available at FEMA Map Service Center: http://msc.fema.gov/webapp/wcs/stores/servlet/StoreCatalogDisplay?storeId=10001&catalogId=10001&langId=-1&userType=G			
Flood Insurance Rate & Floodway Maps	Site 1	Site 2	Site 3
Map Panel No(s)	09003C0231F		
Effective Date(s)	September 26, 2008		
Flood Hazard Zone(s) [Indicate "None", if no zone]	A		
Regulatory Floodway (Yes/No)	Yes		
<input checked="" type="checkbox"/> Copies of FEMA Flood Insurance Rate Maps (FIRM) and Floodway & Flood Hazard Boundary Maps (<i>if separate maps were published</i>) with bridge locations and/or project limits annotated must be attached to this form and included in the preliminary hydraulic design and the floodplain/floodway analysis reports.			

9. Floodplain Involvement

Type of Floodplain Involvement (Check all that apply)		
Site 1	Site 2	Site 3
<input checked="" type="checkbox"/> Bridge/Culvert Replacement	<input type="checkbox"/> Bridge/Culvert Replacement	<input type="checkbox"/> Bridge/Culvert Replacement
<input type="checkbox"/> Bridge/Culvert Rehabilitation or Modification	<input type="checkbox"/> Bridge/Culvert Rehabilitation or Modification	<input type="checkbox"/> Bridge/Culvert Rehabilitation or Modification
<input type="checkbox"/> Fill <input checked="" type="checkbox"/> Cut in floodplain	<input type="checkbox"/> Fill <input type="checkbox"/> Cut in floodplain	<input type="checkbox"/> Fill <input type="checkbox"/> Cut in floodplain
<input type="checkbox"/> Fill <input type="checkbox"/> Cut in floodway	<input type="checkbox"/> Fill <input type="checkbox"/> Cut in floodway	<input type="checkbox"/> Fill <input type="checkbox"/> Cut in floodway
<input type="checkbox"/> Stream Alteration	<input type="checkbox"/> Stream Alteration	<input type="checkbox"/> Stream Alteration
<input type="checkbox"/> New or Substantially Improved Structure (i.e., Building/Facility)	<input type="checkbox"/> New or Substantially Improved Structure (i.e., Building/Facility)	<input type="checkbox"/> New or Substantially Improved Structure (i.e., Building/Facility)
<input type="checkbox"/> Critical Activity as defined in CGS Sec. 25-68b (4)	<input type="checkbox"/> Critical Activity as defined in CGS Sec. 25-68b (4)	<input type="checkbox"/> Critical Activity as defined in CGS Sec. 25-68b (4)

9. Floodplain Involvement (continued)

Regulatory floodplain/floodway analyses – Based on the type and extent of floodplain involvement, does the project require detailed hydraulic analyses in accordance with the DEP “Hydraulic Analysis Guidance Document” available at http://www.ct.gov/dep/cwp/view.asp?a=2709&q=324222&depNav_GID=1643					Yes/No
					Yes
If no, explain:					
Has the stream been studied in detail by the FEMA FIS? (Yes/No)					No
If yes, the back-up hydraulic analysis data used in the FIS must be obtained from FEMA using the FIS Data Request Form (http://www.fema.gov/library/viewRecord.do?id=2223), unless the town/city has a copy of the data that matches the effective study. Enter the FEMA data request and receipt information in the space provided:					
Date Requested		Data Available (Yes/No)?	Partly	Date Received	12/15/2008
<input type="checkbox"/> A copy of the archive hydraulic data obtained from FEMA or the town/city must be included in the preliminary floodplain/floodway analysis report.					
<input type="checkbox"/> All copies of correspondence with FEMA, in particular, if FEMA determines that the hydraulic data is unavailable, must be included in the preliminary floodplain/floodway analysis report.					
Critical Activity - Does the proposed project involve the treatment, storage and disposal of hazardous waste or the siting of hospitals, housing for the elderly, schools or residences, in the 0.2 per cent (500 year) floodplain?					Yes/No
					No
<input type="checkbox"/> If yes, the base flood for the critical activity shall have a recurrence interval equal to the 500 year flood event.					
Nonintensive Floodplain Uses - Will the proposed project promote development in floodplains or will utilities servicing the project be located so as to enable floodplain development?					Yes/No
					No
Explain (required if yes or no): The proposed work within the regulated area involves the replacement of the bridge structure. The new structure will be significantly wider and have no negative impacts.					
National Flood Insurance Program (NFIP) – Does the proposed project meet the NFIP minimum standards established in 44 CFR, Chapter 1, Subchapter B, Part 60.3, floodplain management criteria for flood-prone areas?					Yes/No
					Yes
Municipal Regulations - Has the municipality in which the proposed project is to be located adopted floodplain regulations containing requirements that are more restrictive than the NFIP floodplain management criteria for flood-prone areas?					Yes/No
					No
If yes, describe the more restrictive requirements:					
Does the proposed project comply with the more restrictive standards of the municipality (Yes/No)?					

9. Floodplain Involvement (continued)

Regulatory Floodplain with No Floodway – The NFIP requires that until a regulatory floodway is designated, that no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30 and AE unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point. (If no regulatory floodway has been adopted, project impacts may be evaluated by considering an equivalent conveyance loss on the opposite side of the river from the proposed project.)			
Is the proposed project consistent with this requirement?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Not applicable. The site has a regulatory floodway.
Floodway Encroachments - Does the proposed project include encroachments, including fill, new construction, substantial improvements, or other development within a NFIP adopted regulatory floodway?			Yes/No No
If yes, will the proposed encroachment into the floodway result in any increase in flood levels during either the 100 year or 10 year discharges?			
100-year:	<input type="checkbox"/> No Increase	<input type="checkbox"/> There is an increase in 100-yr flood level of (1/100ths of a foot): Is the increase contained within city/town property (Yes/No)? Has approval of such increase been received in accordance with 44 CFR, Chapter 1, Subchapter B, Part 65.12 (Yes/No)?	
RCSA Section 25-68h-2(c)(5) and Section 60.3(d)(3) of NFIP regulations prohibit any activity within a regulatory floodway which would result in any increase in the base flood water surface elevation. In order for any proposed project which does not meet these standards to be approved, a map revision is required from FEMA. Some increase in the floodway elevations within the roadway right-of-way may be acceptable without FEMA's prior approval, however, an exemption to the flood management regulations would be required and the project would need to be submitted to the DEP in accordance with the MOU.			
10-year:	<input type="checkbox"/> No Increase	<input type="checkbox"/> There is an increase in 10-yr flood level of (1/100ths of a foot): Is the increase contained within city/town property (Yes/No)?	
RCSA Section 25-68h-2(c)(5) prohibits any activity within a regulatory floodway which would result in an increase in the elevation of the 10-year water surface. An increase within the right of way or one with no adverse impact may be approved, however, an exemption to the flood management regulations would be required and the project would need to be submitted to the DEP in accordance with the MOU.			
Flooding - Will the proposed project pose any hazard to human life, health or property in the event of a base flood?			Yes/No No
Explain: The project has been designed to conform to the regulatory requirements and does not increase the flooding elevations.			

9. Floodplain Involvement (continued)

Flood Elevations - Will the proposed project cause an increase in flood elevation during the base flood discharge?	Yes/No No
If yes, the increase in flood elevation in 1/100ths of a foot is:	
Flood Velocities - Will the proposed project cause an increase in flow velocity during the base flood discharge?	Yes/No No
If yes, the increase in flow velocity in feet per second is:	
Will such increase in velocity or flood elevation cause channel erosion or pose any hazard to human life, health or property?	Yes/No No
Explain: No increases in velocity. The new structure is designed to prevent any damage from scour.	
Flood Storage - Will the proposed project affect the flood storage capacity or flood control value of the floodplain?	Yes/No No
Explain: No decrease in flood storage capacity or flood control value of the floodplain	
Degrading or Aggrading Stream Beds - Is the streambed currently degrading or aggrading?	
<input type="checkbox"/> Degrading	<input type="checkbox"/> Aggrading
<input checked="" type="checkbox"/> Neither	
Has the project design addressed degrading or aggrading streambed conditions (Yes/No)?	
Ice Jams - Is the watercourse prone to ice jams or floods due to ice (Yes/No)?	No
Has the project design considered ice jams or floods due to ice (Yes/No)?	No
Storage of Materials & Equipment – Storage of materials that could be injurious to human health or the environment in the event of flooding is prohibited below the elevation of the 500 year flood. Other material or equipment may be stored below the 500 year flood elevation provided that such material or equipment is not subject to major damage by floods, and provided that such material or equipment is firmly anchored, restrained or enclosed to prevent it from floating away or that such material or equipment can be removed prior to flooding.	
Will the construction or use of the proposed project involve the storage of materials below the 500 year flood elevation that are buoyant, hazardous, flammable, explosive, soluble, expansive or radioactive, or the storage of any other materials which could be injurious to human, animal or plant life in the event of a flood?	Yes/No No
If yes, describe the materials and how such materials will be protected from flood damage, secured or removed from the floodplain to prevent pollution and hazards to life and property. The project site is within the 500 year limits, however, standard CTDOT specifications call for the contractor to remove any materials from the site for impending high flows.	

9. Floodplain Involvement (continued)

Floodwater Loads - Will structures, facilities and stored materials be anchored or otherwise designed to prevent floatation, collapse, or lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy?		Yes/No
		Yes
Coastal Areas - Flood hazard potential in coastal areas shall be evaluated considering surface profiles of the combined occurrence of tides, storm surges, and peak runoff. The starting water surface elevation for the base flood in watersheds with time of concentrations of over 6 hours shall be the 10 year frequency tidal surge level.		
If the proposed project is in a coastal area, have the hydraulic analyses incorporated these criteria?		
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Not in Coastal Area

10. Environmental Considerations

Fish Passage & Habitat – The design of bridges, culverts and stream channel alterations along watercourses must be reviewed by and receive concurrence from the Department of Environmental Protection Fisheries Division. Enter the Fisheries review and concurrence information below:		
Fisheries Review Request Date	Fisheries Comments Date	Fisheries Concurrence Date
<input type="checkbox"/> Copies of all correspondence with the DEP Fisheries must be attached to this form and/or included in the preliminary hydraulic design and the floodplain/floodway analysis reports		
Endangered, Threatened Or Special Concern Species – Is the project site located within an area identified as a habitat for endangered, threatened or special concern species as identified on the "State and Federal Listed Species and Natural Communities Map"? http://www.ct.gov/dep/cwp/view.asp?a=2698&q=322898&depNav_GID=1707	Yes/No	Date of Map
	No	Feb. 2009
If yes, complete and submit a <i>Connecticut Natural Diversity Data Base (CT NDDB) Review Request Form</i> (DEP-APP-007) to the DEP Bureau Of Natural Resources, Wildlife Division. http://www.ct.gov/dep/cwp/view.asp?a=2709&q=324218&depNav_GID=1643#NDDB		Date Requested
Correspondence received (Yes/No)?		Date Reviewed
Concerns:		
Has a field survey been conducted to determine the presence of these species? If yes, provide biologist's name & address.	Yes/No	Survey Date
	No	
Name	Address	
<input type="checkbox"/> Copies of any correspondence provided to or received from the NDDB, including copies of the completed CT NDDB Review Request Form, any field surveys, and any other information which may lead you to believe that endangered or threatened species may or may not be located in the area of the project, must be attached to this form.		
Aquifer – Is the site located within an aquifer protection area as defined in Section 22a-354a through 354bb of the General Statutes? If yes, coordination with the water company is required.		Yes/No
		Yes
Name of Water Company	Hazardville Water Company Connecticut Water Company	
Public Water Supply – Is the project located within a public water supply watershed or a well-head protection area?	Yes/No	<input type="checkbox"/> Reservoir
	Yes	<input checked="" type="checkbox"/> Well-head
Name of Reservoir or Well-head	Name of Water Company	
	Hazardville Water Company Connecticut Water Company	

10. Environmental Considerations (continued)

If project is located within public water supply watershed or aquifer protection area: <input checked="" type="checkbox"/> The design of storm drainage systems shall be coordinated with the Department of Public Health (DPH) and the water authority. (plans sent for review 12/9/2009) <input type="checkbox"/> Copies of any correspondence/meeting minutes with the DPH and the water company must be attached to this form. <input checked="" type="checkbox"/> A "Notice to Contractor" shall be prepared with input from the Office of Environmental Planning that shall be included in the contract documents.	
Stormwater Quality – Does the project include new installation or the modification of storm drainage systems?	Yes/No Yes
<input checked="" type="checkbox"/> If yes, the drainage design and stormwater treatment practices shall be in accordance with the ConnDOT <i>Drainage Manual</i> (http://www.ct.gov/dot/cwp/view.asp?a=3200&q=260116&dotPNavCtr=#40139), the <i>Design Measures for Stormwater Permits Phase II</i> (http://www.ct.gov/dot/cwp/view.asp?a=2303&q=300868) guidelines and the DEP 2004 <i>Connecticut Stormwater Quality Manual</i> (http://www.ct.gov/dep/cwp/view.asp?a=2721&q=325704&depNav_GID=1654).	
Erosion and Sediment Control (E & S) – E & S plans shall be consistent with the 2002 <i>Connecticut Guidelines for Soil Erosion and Sediment Control</i> (http://www.ct.gov/dep/cwp/view.asp?a=2720&q=325660&depNav_GID=1654), the current version of ConnDOT's "On Site Mitigation for Construction Activities" and the <i>Standard Specifications Form 816, Section 1.10, Environmental Compliance</i> (http://www.ct.gov/dot/cwp/view.asp?a=3609&q=430362).	
<input checked="" type="checkbox"/> E & S plans shall be developed in final design in accordance with the required documents.	
Estimate total acres of site disturbance for project:	The General Permit for Stormwater Discharge shall be:
<input checked="" type="checkbox"/> less than 1 acre <input type="checkbox"/> greater than or equal to 1 acre but less than 5-acres <input type="checkbox"/> greater than 5 acres	<input checked="" type="checkbox"/> Not Required <input type="checkbox"/> Reviewed & Approved by City/Town <input type="checkbox"/> Registered with the DEP
General Permit for Stormwater and Dewatering Wastewaters from Construction Activities (Stormwater Discharge): http://www.ct.gov/dep/cwp/view.asp?a=2709&q=324212&depNav_GID=1643#StormwaterConstructionGP	

10. Environmental Considerations (continued)

<p>U.S. Army Corps of Engineers (Corps) Programmatic General Permit (PGP) – The Corps regulates any work in U.S. waters or wetlands. The New England District of the Corps has issued a PGP to expedite review of minimal impact projects in coastal and inland waters and wetlands within the State of Connecticut. Although the PGP is not directly related to the FMC, the requirements for bridges or culverts under the PGP may affect the design of these structures which may in turn affect the documentation for the FMC. Therefore, an early understanding of the PGP requirements is necessary to ensure that the project is eligible for the streamlined Corps permit and/or to avoid any unnecessary design changes that may affect the FMC approval and the project schedule. A copy of the CT PGP is available at http://www.nae.usace.army.mil/reg/ctogp.pdf</p>						
Indicate the area of impact to inland or tidal wetlands from the project (0 = No Impact)						<input checked="" type="checkbox"/> Inland <input type="checkbox"/> Tidal
Permanent (Acres)		Temporary (Acres)		Total Impact (Acres)		
		.0138 estimated		0.0 estimated		
Does the project result in fill in the regulatory floodway (Yes/No)?						No
Does the project include a bridge or culvert waterway crossing (Yes/No)?						Yes
Is the drainage area to the bridge/culvert greater than or equal to one square mile (Yes/No)?						Yes
<input checked="" type="checkbox"/> Bridge or Open-Bottom Structure				<input type="checkbox"/> Culvert or Artificial-Bottom Structure		
<input checked="" type="checkbox"/> Crossing spans at least 1.2 times the watercourse bank full width <input checked="" type="checkbox"/> Structure has an openness ratio equal to or greater than 0.25 meters <input checked="" type="checkbox"/> Structure allows for continuous flow and does not result in a change of the normal surface elevation of the upstream waters, waterway or wetland <input checked="" type="checkbox"/> Structure incorporates a riparian bank on at least one side for wildlife passage <i>Open bottom arches, bridge spans or embedded culverts are generally preferred over traditional culverts and are required for Category 1/non-reporting projects. However, site constraints may make use of an open bottom arch, bridge span or embedded culverts impractical, and in these cases documentation must be provided.</i>				<input type="checkbox"/> Structure has an openness ratio equal to or greater than 0.25 meters <input type="checkbox"/> Culvert gradient is less than or equal to the streambed gradient upstream and downstream of the culvert <input type="checkbox"/> Invert is set at least 1 foot below streambed elevation; (for double box crossings, at least one box is set 1 foot below, for culverts where one foot is not practicable, 25% of the pipe must be depressed) <input type="checkbox"/> Structure allows for continuous flow and does not result in a change of the normal surface elevation of the upstream waters, waterway or wetland <input type="checkbox"/> Structure does not impede the passage of fish		
Waterway Crossing Data – Enter the bridge/culvert crossing data below:						
Location	Site 1		Site 2		Site 3	
Bridge/Culvert Type	Single Span Bridge					
Span/Size	80 ft	m	ft	m	ft	m
Channel Bankfull Width	60 ft	m	ft	m	ft	m
Culvert embedment depth	ft	m	ft	m	ft	m
Cross Sectional Area (excludes embedded area)	Approx. 1024 ft ²	m ²	ft ²	m ²	ft ²	m ²
Bridge/Culvert Length (in direction of flow)	45 ft	m	ft	m	ft	m
Openness Ratio (m ² /m)	Approx. 22.7 m		m		m	
Check the type of permit required for the project:						
<input checked="" type="checkbox"/> Project is Category 1 eligible. Documentation will be processed through Office of Environmental Planning.						
<input type="checkbox"/> Project is Category 2 eligible and must be presented at Project Manager's Meeting. Corps application Form ENG 4345 and CT PGP addendum (both available at http://www.nae.usace.army.mil/reg/index.htm) must be prepared. If any of the above criteria cannot be met, a justification for the reasons must be included in the permit submission.						
<input type="checkbox"/> Project is not eligible for PGP. An individual permit must be submitted to the Corps.						

11. Stormwater Management

Stormwater Runoff – The proposed project will (check all that apply):		
<input type="checkbox"/> Increase the area of impervious surfaces	<input type="checkbox"/> Alter existing drainage patterns	
<input type="checkbox"/> Increase runoff coefficients	<input type="checkbox"/> Alter time of concentrations	
<input type="checkbox"/> Change the timing of runoff in relation to adjacent watersheds		
Will the proposed project impact downstream areas by increasing peak flow rates, the timing of runoff, or the volume of runoff?		Yes/No
		No
If yes, describe the downstream impacts for the 2, 10 and 100 year frequency discharges:		
The pre and post development peak flow rates at the downstream design point are as follows:		
Return Frequency (Year)	Peak Discharges (CFS)	
	Pre-Development	Post-Development
2		
10		
100		
The above peak discharges were computed utilizing the a storm duration of:		Hour
		24
This duration storm was selected because a CTDOT roadway design criterion was utilized due to funding sources and desire of town.		
Describe the location of the design point and why this location was chosen: The design point is immediately upstream of the bridge structure. This is the most logical point since it accounts for nearly all of the drainage from the project and eliminates rights of way requirements.		
Stormwater Detention Facilities – Does the proposed project include the construction of any stormwater detention facilities?		Yes/No
		No
<input type="checkbox"/> If yes, complete the <i>Stormwater Detention Facilities</i> worksheet and attach		
Storm Drainage Systems – Does the proposed project include the construction of subsurface storm drainage systems?		Yes/No
		No
<input type="checkbox"/> If yes, complete the <i>Storm Drainage Systems</i> worksheet and attach		

12. Hydrologic Report(s)

<input checked="" type="checkbox"/> Perform hydrologic analysis in accordance with the methods identified in the current ConnDOT Drainage Manual and Consulting Engineers General Memorandum 07-06, "StreamStats" (http://www.ct.gov/dot/cwp/view.asp?a=2303&q=421916).
<input checked="" type="checkbox"/> Prepare narrative describing the watershed; design storm frequency; FEMA, SCEL, USGS stream gage, <i>StreamStats</i> or other study discharge information, if available; the hydrologic methodologies used in the analysis; results of the hydrologic analysis and final recommendations for the 2, 10, 25, 50, 100 and 500-year storm frequencies.
<input checked="" type="checkbox"/> Include <u>all</u> other documentation as outlined in Chapter 6, Appendix D of the Drainage manual.
<input checked="" type="checkbox"/> Submit a draft Hydrologic Report to ConnDOT for review and approval. The persons preparing and checking the report shall sign and date the report. The report shall be signed and dated by the Department approved hydraulic engineer and include a professional engineer seal, signature and date.
<input type="checkbox"/> Incorporate comments into report, repackage and resubmit Final Report with signatures. Provide responses to previous comments.

13. Hydraulic Report(s)

Depending on whether the flooding source identified in Section 4, "Flooding Source Identification & Floodplain Determination", has been studied in detail by FEMA, one or both of the following documents shall be required:

- A. Preliminary Hydraulic Analysis Report** – This report and hydraulic analyses contained therein, shall document the hydraulic design for the project and its conformance to the standards and design criteria outlined in the ConnDOT Drainage Manual 2000, as revised. The manual and revisions can be found on the internet at <http://www.ct.gov/dot/cwp/view.asp?a=1385&Q=260116>. For projects potentially affecting a regulatory floodplain that was determined by approximate methods (FEMA Zone A), this report and hydraulic analyses contained therein, shall document that the proposed project is in conformance with the applicable flood management standards and criteria prescribed in Sections 25-68b through 25-68h of the Connecticut General Statutes (CGS), Sections 25-68h-1 through 25-68h-3 of the Regulations of Connecticut State Agencies, and Section 13a-94 of the CGS.

The report and hydraulic analyses shall be prepared in accordance with the latest version of the DEP "Hydraulic Analysis Guidance Document" and the ConnDOT Drainage Manual. The hydraulic analyses shall be performed using the latest version of the ACOE HEC-RAS computer program unless another program has been specified or approved by the Department.

Cross sections for the hydraulic models shall be developed from field survey and where appropriate, supplemented with cross sections from previous analyses, LIDAR data or other available contour mapping.

Peak discharges from the approved Final Hydrologic Report shall be used. Unless otherwise noted, the 2, 10, 25, 50, 100, and 500-year storm events shall be analyzed for riverine conditions. For tidal structures a combination of tidal storm surge and riverine flooding needs to be analyzed.

☒ Required – **Complete Section 13A**

☐ Not Required (*indicate reason*)

Reason:

- B. Preliminary Floodplain/Floodway Analysis Report** – This report is only required for floodplain/floodway involvement in watercourses that have been studied in detail by FEMA. The report is not required for watercourses with FEMA Flood Hazard Zone "A", "B", or "X" ("C" in older studies) designations or when no zone designation is shown on the FEMA mapping. For projects potentially affecting a regulatory floodplain and floodway, this report and hydraulic analyses contained therein, shall document that the proposed project is in conformance with the applicable flood management standards and criteria prescribed in Sections 25-68b through 25-68h of the Connecticut General Statutes (CGS), Sections 25-68h-1 through 25-68h-3 of the Regulations of Connecticut State Agencies, and Section 13a-94 of the CGS.

The report and hydraulic analyses shall be prepared in accordance with the latest version of the DEP "Hydraulic Analysis Guidance Document" (<http://dep.state.ct.us/pao/download.htm#IWRD>) and the ConnDOT Drainage Manual. The hydraulic analyses shall be performed using the latest version of the ACOE HEC-RAS computer program unless another program has been specified or approved by the Department.

Cross sections for the hydraulic models shall be the same as those used for the published FEMA FIS. The original FEMA FIS hydrologic and hydraulic analysis data is requested as noted in Section 4 of this form. When the FEMA data is unavailable, the DEP guidance document shall be followed. The FIS cross sections may be supplemented, replaced or additional cross sections from field survey information may be inserted into the hydraulic model in order to define the project site as outlined in the DEP guidance document. In cases where discrepancies between the FIS cross sections and the current survey information are unacceptable, or obvious input errors are noted, data from the current survey shall be used.

Peak discharges from the published FEMA FIS shall be used. Unless otherwise noted, the 10, 50, 100, and 500-year peak discharges shall be analyzed for the floodplain (unencroached condition) analysis. The 10 and 100 peak discharges shall be analyzed in the floodway (encroached condition) analysis. When only a portion of the stream reach is being studied by the project, the hydraulic models shall start and end at "lettered" FEMA cross sections.

☐ Required – **Complete Section 13B**

☒ Not Required (*indicate reason*)

Reason: Design has been prepared as if the project has been studied in detail by FEMA, but the watercourse has a FEMA Flood Hazard Zone "A" designation. Based on this criterion, no separate floodway report has been prepared.

13A. Preliminary Hydraulic Analysis Report

The following hydraulic models shall be developed:

- ☒ *Existing conditions model* – This model shall be developed to reflect the current, pre-project conditions.
- ☒ *Natural conditions model* – This model is required for all structure replacements and is typically developed by removing existing structure data from the existing conditions model. Only the 100-year peak discharge needs to be analyzed in the natural conditions model.
- ☒ *Proposed conditions model* – This model is developed by imposing the proposed structure and any other proposed modifications onto the existing conditions model. Proposed modifications may include, among other things, floodplain encroachments resulting from the proposed highway and bridge design and any stream channel relocations/restorations. The preliminary hydraulic design and proposed model shall also address any fisheries and aquatic habitat concerns identified by the DEP Fisheries review. The hydraulic models shall be compared to verify that there are no increases in elevations from existing to proposed conditions and that the proposed conditions model does not increase the water surface elevation by more than one foot over the natural conditions for the 100-year storm event. The proposed conditions model results shall be used to verify that the design of culverts and bridges satisfy the design criteria outlined in Tables 8-4 and 9-2 of the Drainage Manual. The In certain cases where these and other design criteria can not be satisfied due to site conditions or other constraints, the report must document the reasons, potential impacts and provide recommendations.
- ☒ *Temporary conditions model* – In combination with the anticipated construction methodology and/or stage construction plans, conceptual water handling and flood contingency plans shall be developed. The temporary conditions model shall reflect any obstructions and reduced channel capacities caused by temporary hydraulic facilities that are used to temporarily divert stream flow or isolate work areas from the stream flow as shown in the water handling plan. All stages of construction shall be analyzed using a temporary design flow as determined by the methodology in Chapter 6, Appendix F, "Hydrology for Temporary Facilities", of the Drainage Manual. In some cases, an analysis of the worst-case scenario only, may be acceptable to document that the temporary condition will not cause or exacerbate flooding of the roadway or private property or result in excessive erosion and sedimentation. As a part of the development of a flood contingency plan for the project, storms greater than the temporary design storm shall also be evaluated and, if necessary, the water handling/stage construction plans shall be modified to avoid excessive flooding or erosion during construction.
- ☒ *All hydraulic models for a specific site shall be created and maintained in the same HEC-RAS project (.prj) file using different geometry, flow data and plan files where needed. The HEC-RAS program has been specifically designed to facilitate review of different conditions and scenarios in this fashion.*
- ☐ Channel Design – Conceptual plans and calculations shall be included in the report for any channel design, stream relocation/restoration, revetment design, scour countermeasures, fisheries enhancements or other similar work proposed for the project.
- ☒ Prepare Report – The report shall include all information required to clearly document the site specific hydraulic analysis and design. At a minimum, the report shall include the following material:
 - ☒ Location Maps (annotated TRU, USGS Quad, FEMA and aerial maps)
 - ☒ Hydraulic Data Sheets (DM, Chapter 9, Appendix A) for each proposed structure based on ConnDOT design discharge.
 - ☒ Hydraulic Cross-Section Location Map(s) with topography and contours showing existing and proposed cross section locations. The map(s) shall be developed from the base mapping for the project.
 - ☒ Water Surface Profile Plots
 - ☒ Existing, Natural & Proposed at 100-year design discharge
 - ☒ Existing & Proposed at 10-year design discharge
 - ☒ Proposed at 100-year design discharge
 - ☒ Comparison Tables
 - ☒ Existing vs. Proposed & Proposed vs. Natural 100-year Water Surface Elevation
 - ☒ Existing vs. Proposed 10-year Water Surface Elevation
 - ☒ Existing vs. Proposed 100-year Average Channel Velocity
 - ☒ Existing vs. Proposed 10-year Average Channel Velocity

13A. Preliminary Hydraulic Analysis Report (continued)

- ☒ Narrative describing the project; hydrology; hydraulic design criteria, analysis methodology and results; natural, existing and proposed conditions; model boundary conditions; hydraulic structures; channel design, stream relocations and restorations; fish passage; any unusual aspects of the hydraulic analysis, results and design; conclusions and recommendations. For structure replacements that decrease backwater from existing conditions, the narrative shall address qualitatively potential downstream effects due to loss of upstream flood storage volume. If it appears that downstream effects may be detrimental, then additional analyses may be required to verify the effects or the design may need to be modified accordingly. The narrative shall be comprehensive and clear enough to expedite the review process by guiding the reviewers' through the project, the hydraulic analysis and design. The document shall also serve as a record so that the design methodology and intent may be understood should the document be referenced many years in the future. Stage construction, water handling, temporary hydraulic facilities and flood contingency shall be described in a separate narrative included in an appendix to the report.
- ☒ Appendices
 - ☒ Site photographs
 - ☒ Data Collection & Field review Forms
 - ☒ HEC-RAS hydraulic model input and output data – Full printout for proposed condition only; HEC-RAS Profile Output Tables – Standard Table 1 including the 2, 10, 25, 50, 100, and 500-year storm events for existing and proposed conditions and 100-year for the natural condition.
 - ☒ Hydraulic calculations – Include all miscellaneous hydraulic calculations used for the design of the project.
 - ☐ Channel Design – Include all calculations, plates or plans for channel design.
 - ☒ Cross section plots – Proposed condition superimposed on existing condition with 10- and 100-year water surfaces and the proposed condition alone with 10- and 100-year water surfaces.
 - ☒ Water Handling And Temporary Hydraulic Facility Design – Narrative describing stage construction, water handling, temporary hydraulic facilities, flood contingency and the development and results of the temporary conditions model; Hydrology for Temporary Facilities (worksheet); HEC-RAS Profile Output Table – Standard Table 1; water surface profile plot; cross section plots showing temporary conditions; plates or plans showing construction staging, water handling and the temporary hydraulic facilities.
 - ☐ Correspondence – Include any correspondence related to the hydraulic design such as a copy of the DEP Fisheries comments and recommendations.
 - ☒ CD – The report shall include a computer CD containing all files used in the hydraulic analysis including HEC-RAS input files and any spreadsheets developed for the project. The CD shall be labeled with the project information and include a clear index of the files contained therein. Any interim calculation or extraneous files used during the design process shall not be copied onto CD.
 - ☒ Other – Include any other site or project specific information required to document the hydraulic analysis and design.
- ☒ Submit Preliminary Hydraulic Analysis Report to ConnDOT for review prior to or concurrent with the Preliminary Design submission. The persons preparing and checking the report shall sign and date the report. The report shall include the signature of the Department approved hydraulic engineer, date and a professional engineer seal, signature and date.

13B. Preliminary Floodplain/Floodway Analysis Report

- ☐ Prior to developing the hydraulic models, the 100-year floodplain limits, floodway and FEMA cross section locations shall be plotted on a plan developed from the base mapping for the project. The proposed conditions shall be superimposed on the plan so that proposed encroachments into the floodplain/floodway can be identified, be eliminated by redesign or be included in the hydraulic models for the project.

The following hydraulic models shall be developed:

- ☐ *Calibrated model* - Recreate the FEMA model "as-is" with the original FEMA data for the 10, 50, 100 and 500-year storm events using the published FEMA flows. Compare the results of this model with FEMA's published values. In the report narrative, discuss any differences between the calibrated model results and the published FEMA data including any apparent errors or discrepancies in the original data.
- ☐ *Existing conditions model* – Modify the calibrated or "as-is" model to reflect the current conditions, keeping in mind that if additional cross sections are required for the proposed conditions model, matching cross sections must be included in the existing conditions model. Also, cross sections at the right of way limits are recommended as they may be needed should the proposed condition show minor increases in water surface elevation near the roadway crossing. However, prior to developing this model, the FEMA cross sections within the study reach of the proposal should be compared to current survey information at the location of the FEMA cross sections in order to determine their accuracy. In situations where any discrepancies found between the FEMA data and the current survey information are relatively minor (generally matching to within 0.5' is acceptable), the FEMA data should be used. In cases where the discrepancies between the FEMA cross sections and the current survey information are unacceptable, or obvious input errors are noted, data from the actual site conditions should be utilized. The report shall discuss any differences.
- ☐ *Existing conditions encroached model* – When a FEMA floodway is present the existing conditions model will be run with encroachments using Method 1 for the 10 and 100-year storm events. The distance between the encroachment stations shall be consistent with the published (FIS "FLOODWAY DATA" table) floodway widths and the floodway widths scaled from the FEMA mapping.
- ☐ *Proposed conditions model* – Similar to the hydraulic analysis report, this model is developed by imposing the proposed structure and any other proposed modifications onto the existing conditions model. Increases in water surface elevation in the proposed conditions model compared to the existing conditions model shall be eliminated by redesign, where possible. Unavoidable increases and potential impacts must be thoroughly discussed in the report narrative. Adverse impacts will not be approved. If the proposed conditions model differs from the published information by more than 0.5-feet, a notification letter and backup data shall be sent to FEMA and the town per the DEP guidelines. The existing and proposed conditions model shall show convergence of the water surface elevation upstream and downstream of the project. If the water surface elevation is lowered in the proposed condition, convergence within 0.5-feet is acceptable.
- ☐ *Proposed conditions encroached model* - When a FEMA floodway is present the proposed conditions model will be run with encroachments using Method 1 for the 10 and 100-year storm events. The encroachment stations must be the same as in the existing conditions encroached model. No increase in water surface elevation (0.00') in the proposed encroached conditions model compared to the existing encroached conditions model is allowed. If an increase occurs, the hydraulic models shall be carefully reviewed and/or the project design shall be modified to eliminate the increase. An increase in water surface elevation that converges to the existing condition at or within the State or Town (for municipal projects) right of way may be permissible if there is no adverse impact shown. Cross sections must be located at the right of way limits to demonstrate convergence. Other unavoidable increases in water surface elevation or modifications to the regulatory floodway will not be permitted without prior approval of a conditional letter of map revision (CLOMR) from FEMA.
- ☐ *All hydraulic models for a specific site shall be created and maintained in the same HEC-RAS project (.prj) file using different geometry, flow data and plan files where needed. The HEC-RAS program has been specifically designed to facilitate review of different conditions and scenarios in this fashion.*
- ☐ **Prepare Report** – The report shall include all information required to clearly document the site specific hydraulic analysis and design. At a minimum, the report shall include the following material:
 - ☐ Location Maps (annotated TRU, USGS Quad, FEMA and aerial maps)
 - ☐ Hydraulic Data Sheets (DM, Chapter 9, Appendix A) for each proposed structure based on FEMA discharge.
 - ☐ Plan showing floodplain/floodway involvement.
 - ☐ Hydraulic Cross-Section Location Map(s) with topography and contours showing FEMA cross section locations and any additional existing and proposed cross section locations. The map(s) shall be developed from the base mapping for the project or other mapping that has been approved for use by the Department.

13B. Preliminary Floodplain/Floodway Analysis Report (continued)

- ☐ Water Surface Profile Plots
 - ☐ Existing & Proposed conditions at 100-year design discharge
 - ☐ Existing encroached & Proposed encroached conditions at 100-year design discharge
 - ☐ Existing & Proposed conditions at 10-year design discharge
 - ☐ Existing encroached & Proposed encroached conditions at 10-year design discharge
 - ☐ Proposed conditions and Proposed encroached conditions at 100-year design discharge
- ☐ Comparison Tables
 - ☐ FEMA FIS model vs. Calibrated model & Calibrated model vs. Existing conditions model 100-year Water Surface Elevation
 - ☐ Existing conditions & Existing encroached conditions vs. Proposed conditions & Proposed encroached conditions 100-year Water Surface Elevation
 - ☐ Existing conditions & Existing encroached conditions vs. Proposed conditions & Proposed encroached conditions 10-year Water Surface Elevation
 - ☐ Existing vs. Proposed conditions 100-year Average Channel Velocity
 - ☐ Existing vs. Proposed conditions 10-year Average Channel Velocity
- ☐ Narrative describing the project; location(s) and description of floodplain/floodway involvement; FEMA FIS data, FEMA cross sections, accuracy and use of additional cross sections to define site; FEMA and project hydrology; hydraulic design criteria; hydraulic structures; channel design, stream relocations and restorations; fish passage; FEMA and project analysis methodology and results; FEMA calibrated model, existing and proposed unencroached and encroached conditions models; model boundary conditions; any unusual aspects of the hydraulic analysis, results and design; conclusions and recommendations. The narrative shall be comprehensive and clear enough to expedite the review process by guiding the reviewers' through the project, hydraulic analysis and design. The narrative shall cross reference any pertinent information contained in the separately bound Hydrologic, Hydraulic Analysis, and Drainage reports prepared for the project.
- ☐ Appendices
 - ☐ FEMA FIS data – FIS cover page, summary of discharges, floodway data table, flood profiles, copy of FIS hydrologic and hydraulic analyses obtained from FEMA.
 - ☐ HEC-RAS hydraulic model input and output data – Full printout for proposed conditions and proposed encroached conditions only; HEC-RAS Profile Output Tables – Standard Table 1 for (1) the 10, 50, 100, and 500-year storm events for existing and proposed conditions, (2) 100-year existing, existing encroached, proposed and proposed encroached conditions and (3) 10-year existing, existing encroached, proposed and proposed encroached conditions.
 - ☐ Cross section plots – Proposed conditions & proposed encroached conditions superimposed on existing conditions & existing encroached conditions with 10- and 100-year water surfaces shown separately.
 - ☐ CD – The report shall include a computer CD containing all files used in the hydraulic analysis including HEC-RAS input files and any spreadsheets developed for the project. The CD shall be labeled with the project information and include a clear index of the files contained therein. Any interim calculation or extraneous files used during the design process shall not be copied onto CD.
 - ☐ Other – Include any other site or project specific information required to document the hydraulic analysis and design.
- ☐ Submit to ConnDOT for review prior to or concurrent with the Preliminary Design submission. The persons preparing and checking the report shall sign and date the report. The report shall include the signature of the Department approved hydraulic engineer, date and a professional engineer seal, signature and date.

Culverts and Bridges

Complete this section <i>only</i> if the proposed project includes the repair, modification, replacement or new construction of a culvert or bridge. Use a separate worksheet for each culvert/bridge on the project.			
Bridge No.	Roadway	Station/Location	Stream Name
04125	South Maple Street		Scantic River
All culverts and bridges are designed in accordance with methods and procedures defined in the DOT Drainage Manual as revised, DOT 816 as revised and the CT 2004 Stormwater Quality Manual as revised.			
Utilizing the DOT Drainage Manual classifications listed below, the culvert or bridge is classified as a:			
<input type="checkbox"/> <i>Minor Structure</i> - Minor structures have a drainage area of less than one square mile in which there is no established watercourse. They shall be designed to pass the 25 year frequency discharge.			
<input type="checkbox"/> <i>Small Structure</i> - Small structures have a drainage area of less than one square mile in which there is an established watercourse. They shall be designed to pass the 50 year frequency discharge.			
<input type="checkbox"/> <i>Intermediate Structure</i> - Intermediate structures have a drainage area greater than one square mile and less than 10 square miles. They shall be designed to pass the 100 year frequency discharge with reasonable underclearance.			
<input checked="" type="checkbox"/> <i>Large Structure</i> - Large structures have a drainage area greater than 10 square miles and less than 1000 square miles. They shall be designed to pass the 100 year frequency discharge with an underclearance not less than two feet.			
<input type="checkbox"/> <i>Monumental Structure</i> - Monumental structures have a drainage area greater than 1000 square miles. They shall be designed to meet the requirements of the Connecticut Department of Environmental Protection, U.S. Army Corps of Engineers, and the U.S. Coast Guard.			
<input type="checkbox"/> <i>Tidal Structure</i> - Tidal structures are subject to tidal action and shall be classified as minor, small, intermediate, etc. depending on their drainage area. These structures shall be designed in accordance with the previously listed classifications. However if the highway is subject to frequent tidal flooding, the design storm may be made consistent with the frequency of flooding by tidal action. The proposed culvert or bridge is classified as:			
<input type="checkbox"/> Minor	<input type="checkbox"/> Small	<input type="checkbox"/> Intermediate	<input type="checkbox"/> Large <input type="checkbox"/> Monumental
Note: Underclearance requirements are most applicable to bridge superstructures that are subject to buoyancy and damage from debris impact and are not applicable to culverts (enclosed conduits).			
Culverts and bridges will be designed for flood frequencies and underclearances stipulated in the DOT Drainage Manual as listed above, except that on local roads and driveways with low traffic volumes and where alternate routes are available, lower design criteria are acceptable when:			
<input type="checkbox"/> Flood discharges may be allowed to cross over roads that are at or close to the floodplain grade.			
<input checked="" type="checkbox"/> Water surface elevations are not increased by more than one foot, and will not cause damage to upstream properties.			
<input type="checkbox"/> Provisions are made to barricade the road when overtopped.			
<input type="checkbox"/> The road or driveway is posted as being subject to flooding.			
Has the structure been designed in accordance with the criteria established in the DOT Drainage Manual?			Yes/No
			Yes
If no, have the preceding conditions been incorporated with the lower design criteria (Yes/No)?			
The culvert or bridge has been designed for:	Design Frequency (Year)	Underclearance (feet)	
	100 year	2 + feet	
Describe the lower design standards and the reasons for not complying with the DOT Drainage Manual:			

Culverts and Bridges (continued)

Design Discharge – If the subject site is located in a FEMA floodway or a <i>numbered</i> "A" zone, the discharge for analyzing the acceptability of a project at that site must be the same discharge used by FEMA in establishing the floodway or <i>numbered</i> "A" zone designation for the site. If the subject site is located in an <i>unnumbered</i> "A" zone or is not located in a FEMA flood zone, such that no detailed study is available, hydrologic analysis must be performed to establish an appropriate design discharge for evaluating the acceptability of the project at that site. If a design discharge is recommended other than the discharge used by FEMA, the designer must still evaluate the project using the FEMA design discharge and provide a detailed justification as to why another discharge was selected.			
100-Year FEMA Discharge (cfs)		100-Year Design Discharge (cfs)	4715
Natural Condition – Bridges and culverts should be designed so that the proposed water surface profile does not exceed the natural profile by more than one foot for the 100-year floodplain analysis. This applies to the replacement of existing bridges and culverts as well as the construction of new structures.			
Will the proposed culvert or bridge meet this standard?	Yes/No	Maximum Increase Proposed vs Natural (feet) Is?	
	Yes	70.03-69.61=+0.41	
If no, provide justification below:			
Headwater – Will the proposed culvert or bridge be designed so that flooding during the design discharge does not endanger the roadway or cause damage to upstream developed property?			
			Yes/No
			Yes
<i>Freeboard</i> is defined as the vertical distance between the design water surface and the upstream control such as the low point of the roadway edge, sill of a building or other controlling element. Indicate the amount of freeboard (in feet) provided in the proposed culvert or bridge design:			77.645 -70.03 = 7.605
Indicate the hydraulic design control(s) for the proposed culvert or bridge below:			
<input type="checkbox"/> The elevation of roadway edge at roadway low point <input type="checkbox"/> The sill elevation of building or other structure			
<input type="checkbox"/> A water surface elevation equal or less than the FEMA regulatory elevation <input checked="" type="checkbox"/> One foot over natural condition requirement			
<input type="checkbox"/> A water surface elevation non-damaging or not encroaching onto private property <input type="checkbox"/> A ratio of the headwater/culvert depth (HW/D) less than 1.5			
<input type="checkbox"/> A water surface elevation below a divide where the flow would be diverted from the area tributary to the culvert <input type="checkbox"/> Maintain existing water surface elevation and flood storage due to downstream flooding concerns			
<input type="checkbox"/> Other:			
Downstream Peak Flows – Will the proposed culvert or bridge increase downstream peak flows by decreasing existing headwater depths during flooding events?			Yes/No
			No
If yes, describe the selected design criteria and the impacts to downstream properties:			

05/2009

Temporary Hydraulic Facilities

This section must be completed if the project requires a temporary hydraulic facility for water handling, temporary stream diversion and stage construction. Temporary hydraulic facilities include, among other things, all channels, culverts, bridges or channel constrictions such as cofferdams which are required for haul roads, channel relocations, culvert installations, bridge construction, temporary roads, or detours. They are to be designed with the same care which is used for the primary facility.

Has such facility been designed in accordance with Chapter 6, Appendix F, "Temporary Hydraulic Facilities," of the DOT Drainage Manual? ☒ Yes ☐ No If yes, the design flood frequency is the: 2 year flood.

Describe the temporary facilities: Temporary cofferdams are proposed to construct substructures in the dry. The location and height of the temporary control structures will be defined on the construction documents to clearly control the contractor.

A two year event was used to analyze the flood elevation to set the minimum elevation of the temporary structures used to build the footing in the dry.

Standard contract language will be included to prevent storage of equipment and materials from within the 500 year limits. The design calls for the contractor to use a sand bag dike on each side of the river to isolate the construction zones. The height required is one foot higher than the 2-year storm event using the restricted waterway width.

Unconfined in water work will be restricted to the typical periods as required to protect fisheries habitat and spawning periods. It is anticipated that the contractor will install the cofferdam systems between July 1st and September 1st.

The steps for erection of the cofferdams are indicated on the plans and within the "Temporary Facilities" Appendix of the Hydraulic Report.

Water pumped will be discharged into one of the proposed temporary detention basins. Each basin will be sized by the contractor to accommodate his operations and prevent discharge of sediment laden water into the River. The outfall of each temporary basin will be into the existing drainage systems. The existing drainage system outfalls will be improved to eliminate any erosion.

Storm Drainage Systems

Complete this section *only* if the proposed project includes the construction of subsurface storm drainage systems.

- a. *DOT Standards* - Is the proposed storm drainage system designed in accordance with the Connecticut Department of Transportation's (DOT) Drainage Manual? ☒ Yes ☐ No

If no, describe the lower design standards and the reasons for not complying with the Drainage Manual:

- b. *Design Storm* - Is the storm drainage system designed for a ten year frequency storm without closing the use of the facility? ☒ Yes ☐ No

- c. *Future Development* - Has the design of the system considered future development of adjacent properties?
☐ Yes ☒ No

- d. *Outlet Protection* - Have the outlets from the system been designed to minimize the potential for downstream erosion?
☒ Yes ☐ No

- e. *Overland Flow* - Has the use of curbing been minimized to encourage overland dispersed flow through stable vegetated areas? ☐ Yes ☒ No

- f. *Vegetated Filter Strips* - Has the design incorporated the use of vegetated filter strips or grass swales to improve the quality of water outletting from the storm drainage system? ☐ Yes ☒ No

- g. *Stormwater Treatment* - Describe features of the stormwater collection system intended to improve the quality of stormwater runoff prior to its discharge to surface waters.

Minimal system to address collection of water in roadway. The proposed design is just to replace the existing system to provide roadway safety.

- h. *E & S Control Plan* - Has the design and installation of the storm drainage system been coordinated with the soil erosion and sediment control plan prepared in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control?

☒ Yes ☐ No

Explain:

Drainage installation to be coordinated with the E&S plans during final design.

Alterations of Watercourses

Complete this section **only** if the proposed project includes the construction or alteration to a natural perennial watercourse or man-made channel

- a. *Topography Change* - Is the watercourse or channel located within a regulatory floodway or Zone A1-30 or AE as designated by the NFIP? ☐ Yes ☒ No
- b. *Hydraulic Capacity* - Does the channel have a minimum flow capacity of a flood equal to at least the 25 year frequency flood? ☒ Yes ☐ No

The channel capacity is designed for the: **xx** year flood.

Does the channel have an inner channel with a capacity of a 2 year frequency flood? ☐ Yes ☒ No

No inner channel

- c. *Aquatic Habitat* - Channel alterations should be designed to create aquatic habitats suitable for fisheries, including suitable habitat for maintaining fish populations and to enable fish passage, and to maintain or improve water quality, aesthetics, and recreation.

Has the applicant had any pre-application meetings or correspondence with DEP Fisheries?

☒ Yes ☐ No

Check each of the following criteria that have been incorporated into the project design:

- ☒ 1. artificial channel linings have been avoided;
- ☐ 2. the channel will encourage ecological productivity and diversity;
- ☒ 3. the channel and its banks will be compatible with their surroundings;
- ☐ 4. the channel will vary in its width, depth, invert elevations, and side slopes to provide diverse aquatic habitat;
- ☐ 5. straightening existing channels and thereby decreasing their length has been avoided;
- ☒ 6. the channel will not create barriers to upstream and downstream fish passage;
- ☐ 7. the channel will contain pools and riffles and a low flow channel to concentrate seasonal low water flows;
- ☐ 8. the channel will contain flow deflectors, boulders and low check dams to enhance aquatic habitat;
- ☐ 9. stream bank vegetation will be preserved where feasible and disturbed stream bank areas will be replanted with suitable vegetation;
- ☐ 10. clean natural stream bed materials of a suitable size will be incorporated in the new channel; and
- ☒ 11. construction of the proposed project will be scheduled to minimize conflicts with spawning, stocking, and recreational fishing seasons.

Describe how the above aquatic habitat design criteria have been incorporated into the project design:

Proposed work within channel is limited to partial removal of the existing bridge abutments and temporary facilities to control water during the footing construction. The areas of excavation between the temporary facilities and the footing / abutment will be backfilled with riprap covered with one foot of natural streambed materials.

Stormwater Detention Facilities

Complete this section *only* if the proposed project includes the construction of any stormwater detention facilities.

Has the DEP determined whether a dam construction permit is required? ☐ Yes ☐ No

The pre and post development peak flow rates at the downstream design point are as follows:

Return Frequency (Year)	Peak Discharges (CFS)		
	Pre-Development	Post-Development (without detention)	Post-Development (with detention)
2			
10			
100			

The above peak discharges were computed utilizing the: _____ hour duration storm. This duration storm was selected because:

Describe the location of the design point and why this location was chosen:

If the proposed project increases peak flow rates for the 2, 10 or 100 year frequency discharges, describe the impacts to downstream areas:

Will the detention facility aggravate erosion along the downstream channel? ☐ Yes ☐ No

In certain situations, detention of stormwater aggravates downstream flooding. This occurs when the discharge from a subwatershed is delayed by a detention facility so that it adds to the peak discharge from another subwatershed. Adding the hydrographs of the two subwatersheds results in a higher peak discharge over that which would occur if detention were not present.

Is the location of the detention facility within the watershed suitable for detention? ☐ Yes ☐ No

Explain:

Standards for Structures (Buildings/Facilities) in Floodplains or Coastal High Hazard Areas

Complete this section *only* if the proposed project involves a new or substantially improved structure or facility located within a floodplain or coastal high hazard area.

- a. *Structures in Coastal High Hazard Areas* - Will the structure or facility be located within an NFIP coastal high hazard area?

☐ Yes ☐ No

If no, skip to paragraph 3(b); if yes:

1. Will the structure or facility be located landward of the reach of mean high tide?

☐ Yes ☐ No

2. Will a new structure or facility be located on an undeveloped coastal barrier beach designated by FEMA?

☐ Yes ☐ No

3. If the structure or facility is/will be located within a coastal high hazard area, the structure or facility must be elevated on pilings or columns so that the bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated to at least one foot above the base flood level and the pile or column foundation and structure attached thereto must be anchored to resist floatation, collapse and lateral movement due to the effects of wind, velocity waters, hurricane wave wash, and base flood water loads acting simultaneously on all building components.

Does the proposed structure or facility meet these standards?

☐ Yes ☐ No

The base flood elevation is: ft. (Datum:)

The elevation of the lowest horizontal structural member is: ft. (Datum:)

4. Will the space below the lowest floor be either free of obstruction or constructed with non-supporting breakaway walls?

☐ Yes ☐ No

5. Will fill be used for structural support of any buildings within coastal high hazard areas?

☐ Yes ☐ No

- b. *Structures in Floodplain Areas* - Are the structures residential or nonresidential?

☐ Residential ☐ Nonresidential If *nonresidential*, skip to paragraph 3(d) below.

- c. *Residential Structures* - If the structure or facility is for human habitation will the lowest floor of such structure or facility, including its basement, be elevated one foot above the level of the 500 year flood?

☐ Yes ☐ No

The 500 year flood elevation is: ft. (Datum:)

The elevation of the lowest floor, including basement, is: ft. (Datum:)

- d. *Non-residential Structures* - If the structure or facility is not intended for residential uses, will the lowest floor of such structure or facility, including its basement, be elevated to or above the 100 year flood height or be floodproofed to that height, or in the case of a critical activity, the 500 year flood height?

☐ Yes ☐ No

If yes, the structure will be: ☐ Elevated ☐ Floodproofed

The base flood elevation is: ft. (Datum:)

The elevation of the lowest floor, including basement, is: ft. (Datum:)

The structure is floodproofed to: ft. (Datum:)

Note: for insurance purposes nonresidential structures must be floodproofed to at least one foot above the base flood elevation. DEP strongly encourages that the height of floodproofing incorporate one foot of freeboard.

Standards for Structures (Buildings/Facilities) in Floodplains or Coastal High Hazard Areas (continued)

- e. *Utilities* - Will service facilities such as electrical, heating, ventilation, plumbing, and air conditioning equipment be constructed at or above the elevation of the base flood or floodproofed with a passive system?

☐ Yes ☐ No

- f. *Water Supply Systems* - Does the proposed project include a new or replacement water supply system?

☐ Yes ☐ No

If yes, is the water supply system designed to prevent floodwaters from entering and contaminating the system during the base flood?

☐ Yes ☐ No

- g. *Sanitary Sewage Systems* - Does the proposed project include a new or replacement sanitary sewage or collection system?

☐ Yes ☐ No

If yes, is the sanitary sewage system designed to minimize or eliminate the infiltration of flood waters into the systems and discharges from the systems into flood waters during the base flood?

☐ Yes ☐ No

- h. *Foundation Drains* - Are foundation drains of buildings designed to prevent backflow from the 100 year frequency flood into the building?

☐ Yes ☐ No ☐ No foundation drains

CORRESPONDENCE

Bednaz, Katie

Correspondence

From: Hawkes, Piya
Sent: Thursday, March 25, 2010 12:05 PM
To: Bednaz, Katie
Cc: Giner, Jose
Subject: RE: Dirt bikes at the end of Sharp Street

Katie,

I looked into erecting a 4 ft high chain link fence in that area however, it would cost approximately \$2,000.00. If we installed this fence dirt bikes would still be able to get back in the escarpment area. Therefore, I have directed my Highway Division to reestablish the existing plastic fence and install signage such as "Private Property Keep Out" "Police Take Notice".

Piya Hawkes
Director, DPW
40 Moody Rd.
Enfield, CT. 06082
Phone: 860-763-7599
Fax: 860-272-1143
phawkes@enfield.org

From: Bednaz, Katie
Sent: Monday, March 22, 2010 1:42 PM
To: Hawkes, Piya
Cc: Giner, Jose
Subject: Dirt bikes at the end of Sharp Street

Hi Piya,

At the IWWA's last meeting, a member mentioned the issue of dirt bikes using the trails on the escarpments at the end of Sharp Street. You may have been there to hear the discussion. I wasn't, so I am relaying the information from Jose. They would like to know what is being done to prevent this type of activity as they are accessing the site from behind or next to the pump station.

I believe this area is also on our erosion areas list. I don't think they were asking about fixing any erosion, but more about limiting access.

Thanks,

Katie Bednaz
Certified PWS & Registered Soil Scientist
Assistant Planner / Wetlands Agent
Enfield Town Hall
820 Enfield Street
Enfield, CT 06082

Phone: (860) 253-6358
Fax: (860) 253-4729

Legislature Restores Consideration of Wildlife to Inland Wetlands and Watercourses Act

By Gregory A. Sharp

In October of 2003, the Connecticut Supreme Court all but eliminated consideration of impacts to wildlife from the Connecticut Inland Wetlands and Watercourses Act (Act), but the General Assembly has responded by writing wildlife and their habitats back into the factors for decision-making under the Act.

Background

In *AvalonBay Communities, Inc. v. Inland Wetlands Commission of the Town of Wilton*, 266 Conn. 150 (2003), the wetlands commission denied an application for regulated activities outside of the boundaries of the wetlands and watercourses and beyond the regulated area around those resources. The application sought to permit the construction of a 113-unit housing project on 10.6 acres. Twenty-five percent of the units were proposed to be affordable.

The commission's denial was based on the potential impact from construction activities on the upland habitat of the spotted salamander, a species which breeds in vernal pools. There were two small vernal pools on the property. The commission's rationale was that the destruction of the upland habitat would reduce the population of the

species in the area, which would reduce the biodiversity of the wetlands themselves.

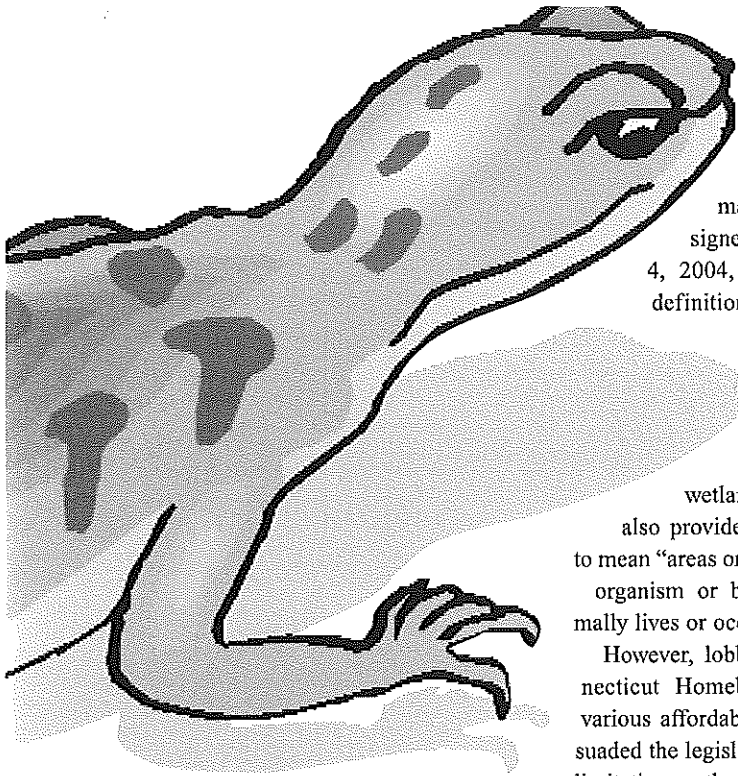
The applicant appealed to the superior court on the grounds that the commission had exceeded its jurisdiction. The superior court initially sustained the appeal. Following the supreme court's decision in *Queach Corporation v. Inland Wetlands Commission*, 258 Conn. 178 (2001), which upheld the right of wetlands agencies to regulate activities outside the boundaries of wetlands and watercourses if those activities are likely to impact those resources, the trial court granted a motion for reargument and subsequently dismissed the appeal. The applicants filed a petition for certification for review, which was granted by the appellate court. The supreme court transferred the appeal to its docket.

Supreme Court Decision

The applicant claimed that the trial court had erred in concluding that the commission had jurisdiction to deny a permit on the sole ground that the proposed development activity outside of the wetlands, watercourses, and the regulated upland review area could reduce the biodiversity of the on- and off-site wetlands by disrupting the upland

habitat of the salamander. The supreme court agreed with the applicant. In doing so, it departed from its customary approach to interpreting the statute, and it virtually removed consideration of wildlife species and their habitats from consideration under the Act.

In its decision, the court concluded that the Act "protects the physical characteristics of wetlands and watercourses and not the wildlife, including wetland obligate species, or biodiversity." Deviating from long-standing practice, the court did not look to the legislative findings in Section 22a-36 for guidance in interpreting the statute.² Rather, it focused its inquiry on the definitions of "wetlands" and "watercourses," which do not include references to animals or plants or their habitats. The commission argued that one of the clear legislative purposes of the Act, as set forth in the legislative findings, is "preventing loss of fish and other beneficial aquatic organisms, wildlife and vegetation...." The court



accord wildlife and wildlife habitat primary consideration in decision-making. Public Act 04-209, signed by the governor on June 4, 2004, expanded the functional definition of "wetlands and watercourses" in the factors for decision-making to specifically include "aquatic, plant or animal life and habitats in wetlands or watercourses...." It

also provided a definition of habitats to mean "areas or environments in which an organism or biological population normally lives or occurs."

However, lobbying efforts by the Connecticut Homebuilders Association and various affordable housing advocates persuaded the legislature to include an explicit limitation on the decision-making authority of municipal wetlands agencies. The limitation does not apply to the Commissioner of the Department of Environmental Protection, who decides applications only from other state agencies and from private applicants in the event local commissions fail to meet decision-making timelines set forth in C.G.S. § 22a-42a(c)(1).

Modeled on the *AvalonBay* decision, the limitation language provides that a municipal inland wetlands agency:

...shall not deny or condition an application for a regulated activity in an area outside wetlands or watercourses on the basis of an impact or effect on aquatic, plant, or animal life unless such activity

outside of the wetlands or watercourses, then impacts to biota alone may not be used to deny or condition a permit, unless the proposed activities will have a likely impact on the physical characteristics of the wetlands or watercourses. Only time, and judicial interpretation, will determine how these potentially conflicting provisions will be resolved. CL

Gregory A. Sharp is a partner in the Environmental Practice Group of Murtha Cullina LLP where he practices in the area of environmental law and represents clients in matters involving wetlands, water diversions and discharges, coastal permitting, and brownfields remediation. He is a member of the executive committees of the Planning and Zoning and the Environmental Law Sections of the Connecticut Bar Association.

responded that the language simply "evinces an intent to protect wildlife as a secondary effect of protecting the wetlands and watercourses themselves."⁴

The court concluded that wetlands agencies:

...may regulate activities outside of wetlands, watercourses and upland review areas only if those activities are likely to affect the land which comprises a wetland, the body of water that comprises a watercourse or the channel and bank of an intermittent watercourse.⁵

In a footnote, the court relegated consideration of wildlife to a situation "where a loss of or negative impact on a wildlife

The result seems to be that impacts to biotic resources and their habitats must be considered in addition to impacts to the wetlands and watercourses themselves in making any decision on whether a proposed regulated activity will be permitted.

species might have a negative consequential effect on the physical characteristics of a wetland or watercourse...."⁶

Legislative Response

Following release of the decision, the Department of Environmental Protection and a coalition of environmental groups, including the Connecticut Association of Conservation and Wetland Commissions, pressed for an amendment to the statute to

will have a likely impact or effect on the physical characteristics of such wetlands or watercourses.⁷

The result seems to be that impacts to biotic resources and their habitats must be considered in addition to impacts to the wetlands and watercourses themselves in making any decision on whether a proposed regulated activity will be permitted. But if a municipal wetlands commission is considering an application for regulated activities

Notes

1. *AvalonBay*, 266 Conn. at 163.
2. *Queach*, 258 Conn. 193-194, *Lizotte v. Conservation Comm'n*, 216 Conn. 320, 329-30 (1990), *Cioffoletti v. Planning and Zoning Comm'n*, 209 Conn. 544, 559-560 (1989), *Huck v. Inland Wetlands and Watercourses Agency*, 203 Conn. 525, 551 (1987), *Aaron v. Conservation Comm'n*, 183 Conn. 532, 538-39 (1981).
3. CONN. GEN. STAT. § 22a-36.
4. *AvalonBay*, 266 Conn. at 167.
5. *Id.* at 163.
6. *Id.* at 163, fn. 19.
7. P.A. 04-209.



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Correspondence



Eastern Connecticut Resource Conservation and Development Area, Inc.

139 Wolf Den Road, Brooklyn, CT 06234 * (860) 774-0224 * www.easternrcd-ct.org

John Guszkowski, President
Paula Stahl, Vice President
Barbara Kelly, Treasurer
Norma O'Leary, Secretary

March 2010

Dear Municipal Official:

Attached is the latest brochure for the Environmental Review Team (ERT) program, a free service to the municipalities of Connecticut. The ERT provides free, multidisciplinary, expert, non-partisan, and project-directed advice and recommendations to municipalities in making their important land use decisions. Our teams have been helping the municipalities of Connecticut for over forty years.

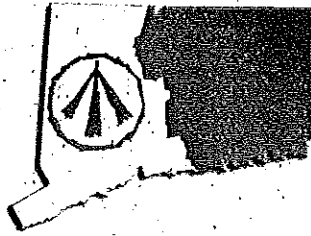
The ERT is a program administered by the Eastern Connecticut Resource Conservation and Development Council (RC&D), a nonprofit organization dedicated to protecting and enhancing those things which make Eastern Connecticut such a special place to live and work. Our areas of focus include increasing farmland viability, developing intermunicipal greenways and open space corridors, and promoting livable, economically vibrant communities. In addition to these core goals, the RC&D has administered the ERT program, which focuses on assisting municipalities in areas where they lack the adequate technical expertise or seek additional assistance in decision-making. The ERT is a critical component to the RC&D's overall mission, and has become an invaluable tool to the municipalities of Connecticut.

It is important to note that as of July 1, 2009, the funding mechanism for the ERT was changed. For many years, the ERT was funded by the "Fee Bill" as established in Connecticut General Statutes §22a-27j. This fee was collected by municipalities for land use applications such as Zoning or Wetlands permits and distributed to the ERT, along with Soil and Water Conservation Districts, the DEP's floodplain management programs, and the Council on Soil & Water Conservation. In the recent State budgetary overhaul, this fee was doubled, but no longer goes to these environmental quality programs. The "Fee Bill" funds now go directly to the State's General Fund. In its stead, the ERT and other programs are now funded out of a budgetary line-item in the DEP's general budget.

I encourage you to review the attached material and to contact Elaine Sych, Connecticut ERT Coordinator with any questions at (860) 345-3977. Please also visit the Team's excellent website, www.ctert.org. We have all seen the results of the rapid rate of development in Eastern Connecticut over the last few decades. I have no doubt that there are projects or proposals in your town that would benefit from input from our Team.

Sincerely,

John Guszkowski
Board President
Eastern Connecticut RC&D Council



Connecticut Environmental Review Team Program **ERT**

Eastern Connecticut and King's Mark
PO Box 70, Haddam, CT 06442
(860) 345-3977
www.ctert.org

Maintaining Funding for Environmental Review Teams Conservations Districts, and Council on Soil and Water (revised) March 1, 2010

We respectfully ask you to maintain full funding to support the technical assistance available to municipal land use agencies, agricultural producers and every taxpayer in the State, provided by Conservation Districts, the Council on Soil and Water (Council), and Environmental Review Teams (ERT).

THE PROBLEM/ Governor's Bill 5018, AA Making Adjustments to State Expenditures and Revenues for the Fiscal Year Ending June 30, 2011, proposes to cut by half funding to CT Conservation Districts, Council and ERT.

The legislature's original intent in funding Districts, Council and ERT was to streamline technical land-use assistance directly to municipalities, among other benefactors. ***Cutting funding to these entities would result in significant reduction in natural resource technical assistance available to municipalities and taxpayers and be a step backward*** in the state's efforts to implement smart growth through municipal cooperation within regions and watersheds.

THE SOLUTION/ Do Not Cut Municipal Land Use Agency's and Agricultural Producer's Technical Assistance Funding

This is NOT a request for more dollars. We are only asking to keep the Conservation Districts, Council and ERT whole through budget negotiations, in-turn keeping whole the programs that they provide to and for municipalities, the agriculture community and each and every taxpayer.
Thank you!

** **

More information about programs of the ERT, Conservation Districts, and Council is on following page.

Contacts:

ERT/ Elaine Sych, Coordinator/ERT 860-345-3977 John Guskowski, Co-Chairman ERT/ 860-928-7846
Council/ Suellen Kozey McCuin, Executive Director/ 860-767-9594
Jeff Folger, Chairman of Legislation/Council, Chair/North Central Conservation District/ 860-644-2511 x 229
Districts/ David Askew, District Manager/North Central Conservation District/ 860-875-3881 x2
Tom ODell, Co-Chairman of Legislation/Council, Chair/CT River Coastal Conservation District/ 860-399-1807

Below is a brief overview of ERT Program, Conservation District's, and Council and their funding.

The Connecticut Environmental Review Teams are a group of environmental professionals drawn together to form multidisciplinary environmental study teams to assist all 169 municipalities in reviewing sites proposed for development or preservation; they consist of a partnership of federal, state, regional and local agencies.

- The ERT provides a unique **free service** of supplying objective, technical reports to local land use decision makers that strengthens support for community decisions, increases awareness of natural resources and provides information not readily available in a timely and cost effective manner.

Connecticut's Conservation Districts provide unbiased technical and environmental consulting services to a range of clients including municipalities, agriculture producers and private landowners.

- Districts serve municipalities by providing expert opinion, technical review, and inspection services for complex development projects. Districts also provide municipal staffing services in a number of towns by providing trained personnel to serve as wetland agent(s).

The Council on Soil and Water Conservation is dedicated to providing a statewide, regionally based, conservation and protection program for the land and water resources of the State of Connecticut.

- The Council coordinates District programs with activities of the Department of Environmental Protection and other state, regional, municipal and local agencies.
-

Funding these entities was created by the legislature to support the services provided by Conservation Districts, Council and ERT as it recognized their value and the need for an adequate and viable funding source and the land use assistance provided to the municipalities and other taxpayers. The services provided by Conservation Districts and ERT offer a form of specialized regional assistance, not otherwise available to our municipalities and taxpayers.

The line item designated for these entities are supported by a \$60 land use fee collected by the towns and provided to the State on any and all land use applications.

Presently seven natural resource positions for assisting communities on a regional/statewide watershed basis are funded by this line item. These include five technical natural resource specialists, one in each of the five Conservation Districts, one Coordinator and an assistant for the ERT and an Executive Director for the Council on Soil and Water who coordinates statewide work and land use programs of the Conservation Districts with state and federal agencies.

Wetlands In the Courts – Recent Cases

Gregory A. Sharp, Esq.
Loni S. Gardner, Esq.
Murtha Cullina LLP

Although there were a number of decisions on wetlands issues in the state and federal courts in 2009, the most important decision for wetland scientists and municipal wetlands commissions this past year was the Connecticut Supreme Court's ruling in Unistar.¹ This abstract will summarize the lengthy decision in that case and provide links to the other cases.

In its opinion in Unistar, the Court upheld the right of a municipal wetlands commission to deny an application for incompleteness due to the refusal of the applicant to submit a detailed wildlife inventory and for its refusal to present design alternatives that might mitigate impacts. The decision indicates the applicant had refused to provide the information based on its determination that the proposed subdivision would not have any physical impacts to the wetland or watercourses on the property.

The applicant had proposed a 34 lot subdivision on a 62 acre parcel containing five wetlands and two vernal pools. The activities proposed were outside of the wetlands and watercourses and outside the upland review area, but they included a roadway and cul-de-sac that would encircle the two vernal pools.

The case is important for two reasons. First, it gives forceful effect to the 2004 amendment to the Inland Wetlands and Watercourses Act which modified the definition of wetlands and watercourses in Section 22a-41(c) to include "aquatic, plant or animal life and habitats in wetlands or watercourses...." Second, it provides guidance on the interplay between §22a-41(c) and 22a-41(d). The latter provides that a commission may not deny or impose conditions on an application for a regulated activity outside wetlands or watercourses based on an impact to aquatic, plant, or animal life, unless it affects the physical characteristics of the wetland or watercourse.

On the first issue, the Supreme Court reasoned that

when a commission evaluates an application for a wetlands permit, it is proper for a commission to consider the factors set forth in §22a-41(a) with respect not only to the wetlands and watercourses in relation to their physical characteristics, but also in relation to the aquatic, plant and animal life and habitats that are part of those wetlands and watercourses. As part of that evaluation, a commission necessarily must be able to request, and is entitled to, information on the aquatic, plant or animal life and habitats that are part of the wetlands or watercourses, pursuant to §22a-41(c), as well as an assessment of impacts to those resources, along with information on any impact to plant or animal life outside the wetlands that might, in turn, impact the wetlands.²

It is worth noting that the Court also pointed out that Putnam's regulations required a description of the proposed activity which includes "[t]he types and extent of plant and animal species on the property and the probable affect of the proposed activity on these species."³

On the second issue, the applicant argued that because the application involved only activities outside the wetland which would cause no impact to the physical characteristics of the wetlands or watercourses, §22a-41(d) did not allow the commission to deny the application or condition it on the basis of impacts to flora and fauna, and therefore, the commission could not properly request the information.

The Court disagreed. It reasoned that

[n]othing in §22a-41(d) prohibits a commission from requesting information on wildlife in order to determine *whether* the proposed activity will ‘affect the physical characteristics of such wetlands’ or will impact wildlife outside the wetlands that in turn will ‘affect the physical characteristics of such wetlands.’⁴

With respect to the refusal to present alternatives, the record reflected that the proposed subdivision would change the surface water runoff characteristics of the site and would modify the flows feeding several wetlands on the property, including one vernal pool.

The Court’s decision indicates that the applicant based its refusal to provide mitigation alternatives on the fact that there would be no adverse affect on the wetlands. The court rejected the applicant’s analysis finding that the evidence clearly established that the activities proposed would result in a physical change to the wetlands, and that it was up to the commission to determine whether that change was adverse. Relying on its decision in Queach,⁵ the Court said

a commission is authorized to request information concerning alternatives to the proposed activity and, significantly, such information permits the commission ‘to determine the likelihood that the proposed activity may or may not impact or affect the resource, and whether an alternative exists to lessen such impact.’⁶

The decision will probably raise the bar for those submitting applications to wetlands commissions with regulations requiring biological inventories, and appears to suggest that any change in stormwater runoff characteristics on a site containing wetlands may constitute the “physical change” necessary to avoid the prohibition contained in §22a-41(d) against commissions denying or conditioning applications for activities outside of wetlands or watercourses based upon biological impacts.

Links to other recent cases:

1. Diamond 67, LLC v. Planning and Zoning Comm’n of the Town of Vernon, 117 Conn. App. 72 (2009). Available online at: <http://www.jud.state.ct.us/external/supapp/Cases/AROp/AP117/117AP448.pdf>.
2. Red 11, LLC v. Conservation Comm’n of the Town of Fairfield, 117 Conn. App. 630 (2009). Available online at: <http://www.jud.state.ct.us/external/supapp/Cases/AROp/AP117/117AP497.pdf>.
3. Town of Canterbury v Deojay, 114 Conn. App. 695 (2009). Available online at: <http://www.jud.state.ct.us/external/supapp/Cases/AROp/AP114/114AP304.pdf>.

4. American Petroleum Institute v. Johnson, 541 F. Supp. 2d 165 (2008). Available online at: http://scholar.google.com/scholar_case?case=3036611890251261625&q=541+F.+Supp.+2d+165+&hl=en&as_sdt=20000000002.
5. United States v. Robison, 521 F.3d 1319 (2008). Available online at: http://scholar.google.com/scholar_case?case=11507303326459955229&q=521+F.3d+1319+&hl=en&as_sdt=20000000002.
6. Ohio Valley Environmental Coalition v. Aracoma Coal Co., 556 F.3d 177 (2009). Available online at: http://scholar.google.com/scholar_case?case=16243098462507853289&q=556+F.3d+177+&hl=en&as_sdt=20000000002.
7. United States v. Lucas, 516 F.3d 316 (2008). Available online at: http://scholar.google.com/scholar_case?case=7962082906293655661&q=516+F.3d+316+&hl=en&as_sdt=20000000002.
8. United States v. Cundiff, 2009 U.S. App. LEXIS 2349 (2009). Available online at: http://scholar.google.com/scholar_case?case=8474210758337649848&q=US+v+Cundiff&hl=en&as_sdt=20000000002.

Footnotes:

¹ Unistar Properties, LLC v. Conservation and Inland Wetlands Commission of the Town of Putnam, 293 Conn. 93 (2009). Available online at: <http://www.jud.state.ct.us/external/supapp/Cases/AROCr/CR293/293CR123.pdf>.

² Id. at 109-110.

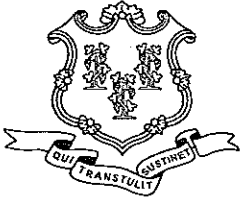
³ Id. at fn 19.

⁴ Id. at 111.

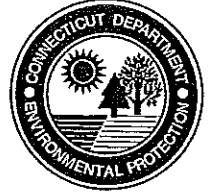
⁵ Queach Corp. v. Inland Wetlands Commission, 258 Conn. 178 (2001). Available online at: <http://www.jud.state.ct.us/external/supapp/Cases/AROCr/258cr123.pdf>.

⁶ Id. at 203.

Correspondence



STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION



To: Connecticut's Municipal Inland Wetlands Agencies

From: Betsey Wingfield
Bureau Chief
Bureau of Water Protection and Land Reuse

Handwritten: PBW
for BW
4 Mar 2010

Dated: March 3, 2010

Re: 2009 Legislation and Regulations Advisory

The 2009 Legislature amended section 22a-42a of the Connecticut Inland Wetlands and Watercourses Act with the passage of Section 3 of Public Act 09-181. This Public Act adds a new subsection (g) to section 22a-42a. This amendment went into effect upon passage of the Public Act on July 2, 2009.

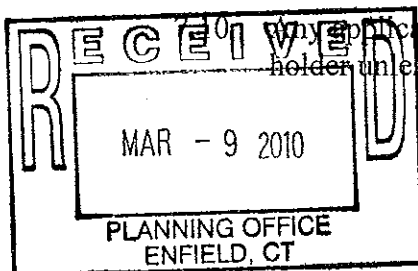
Section 22a-42a of the Connecticut Inland Wetlands and Watercourses Act pertains to the establishment of wetland and watercourse boundaries by regulation, the adoption of inland wetlands agency regulations, inland wetlands agency permits, and filing fees. Public Act 09-181 added a new subsection (g) to section 22a-42a which allows permits issued during the period from July 1, 2006 to July 1, 2009 to be valid for not less than six years, and any such permit may be renewed upon certain circumstances, provided no such permit be valid for more than eleven years. Permits issued prior to July 1, 2006 or after July 1, 2009 are not subject to this amendment.

A complete copy of Public Act 09-181 is attached for your use with the amended language designated by "NEW". You should plan to revise your regulations to reflect the amendment to Section 22a-42a. Please note that only the revised language in section 3 of Public Act 09-181 is relevant to inland wetlands agencies. Changes to the other sections of the public act, while noted as "NEW", do not apply to inland wetlands agencies.

If your regulations follow the Inland Wetlands and Watercourses Model Municipal Regulations (IWWMMR) Fourth Edition dated May 1, 2006, you should plan to revise the following sections as noted.

Section 7: Application Requirements

The underlined language noted below is new and should be added to your regulations.



Any application to renew a permit shall be granted upon request of the permit holder unless the Agency finds that there has been a substantial change in

circumstances which requires a new permit application or an enforcement action has been undertaken with regard to the regulated activity for which the permit was issued provided a) no permit issued during the time period from July 1, 2006, to July 1, 2009, inclusive, shall be valid for more than eleven years; and b) no permit issued prior to July 1, 2006 or after July 1, 2009 may be valid for more than ten years.

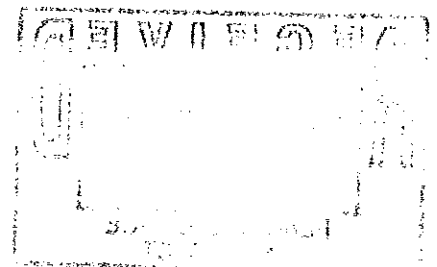
Section 11: Decision Process and Permit

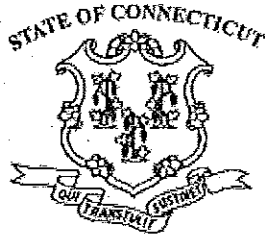
The underlined language noted below is new and should be added to your regulations.

- 11.6 Any permit issued by the Agency prior to July 1, 2006 or after July 1, 2009 for the development of land for which an approval is required under section 8-3, 8-25 or 8-26 of the Connecticut General Statutes shall be valid for five years provided the Agency may establish a specific time period within which any regulated activity shall be conducted. Any permit issued by the Agency prior to July 1, 2006 or after July 1, 2009 for any other activity shall be valid for not less than two years and not more than five years. Any permit issued by the Agency during the time period from July 1, 2006, to July 1, 2009, inclusive, shall expire not less than six years after the date of such approval.

Please be reminded it is our understanding that Section 3 of Public Act 09-181 governs until such time that your regulations are revised.

Should you have any further questions regarding the above changes, please feel free to contact Darcy Winther of the Wetlands Management Section at (860) 424-3019.





Substitute House Bill No. 5254

Public Act No. 09-181

AN ACT CONCERNING EXTENDING THE TIME OF EXPIRATION OF CERTAIN LAND USE PERMITS.

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Section 1. Section 8-3 of the general statutes is amended by adding subsection (m) as follows (*Effective from passage*):

(NEW) (m) Notwithstanding the provisions of this section, any site plan approval made under this section during the period from July 1, 2006, to July 1, 2009, inclusive, except an approval made under subsection (j) of this section, shall expire not less than six years after the date of such approval and the commission may grant one or more extensions of time to complete all or part of the work in connection with such site plan, provided no approval, including all extensions, shall be valid for more than eleven years from the date the site plan was approved.

Sec. 2. Section 8-26c of the general statutes is amended by adding subsection (e) as follows (*Effective from passage*):

(NEW) (e) Notwithstanding the provisions of this section, any subdivision approval made under this section during the period from July 1, 2006, to July 1, 2009, inclusive, shall expire not less than six years after the date of such approval and the commission may grant one or more extensions of time to complete all or part of the work in connection with such subdivision, provided the time for all extensions under this subsection shall not exceed eleven years from the date the subdivision was approved.

Sec. 3. Section 22a-42a of the general statutes is amended by adding subsection (g) as follows (*Effective from passage*):

(NEW) (g) Notwithstanding the provisions of subdivision (2) of subsection (d) of this section, any permit issued under this section during the period from July 1, 2006, to July 1, 2009, inclusive, shall expire not less than six years after the date of such approval. Any such permit shall be renewed upon request of the permit holder unless the agency finds that there has been a substantial change in circumstances that requires a new permit application or an enforcement action has been undertaken with regard to the regulated activity for which the permit was issued, provided no such permit shall be valid for more than eleven years.

Sec. 4. Section 8-26g of the general statutes is amended by adding subsection (c) as follows
(Effective from passage):

(NEW) (c) Notwithstanding the provisions of this section, any approval of a subdivision of land for a project of four hundred or more dwelling units made during the period from July 1, 2006, to July 1, 2009, inclusive, shall expire not less than eleven years after the date of such approval.

Approved July 2, 2009

Correspondence

March 15, 2010

Dear Town Inland Wetlands/Forestry Contact:

Enclosed is a "Notification of Timber Harvest Form" that forest landowners or their agents who are planning a commercial timber harvest would submit to your town's Inland Wetlands Commission. This Form, which we hope will be widely adopted for use by towns across Connecticut, was developed over many months by an Ad-Hoc Subcommittee of the State Forest Practices Advisory Board.¹ This Subcommittee has included approximately 20 participants drawn from municipal inland wetlands commissioners, municipal wetlands enforcement officers, certified professional foresters, certified forest products harvesters and Connecticut DEP representatives.

Because timber harvesting and forestry fall within the legal definition of agriculture in Connecticut, they are permitted as of right in wetlands unless certain specific, permit-required activities are involved. Local Inland Wetlands Commissions, however, have the right to require sufficient information so that they, not the landowner, can decide whether the proposed activity does or does not require a permit. This Form was developed to help towns obtain this information in an efficient, predictable way, and therefore make such jurisdictional rulings quicker and easier for everyone involved.

While this is not an "official" Connecticut DEP Form, forestry and wetland experts at the Agency have provided significant input into its development. It has been endorsed for municipal usage by the following organizations:

- The Connecticut Farm Bureau Association
- The Connecticut Forest & Park Association
- The Connecticut Professional Timber Producers Association
- The Society of American Foresters - CT Chapter

We hope this Form will be widely accepted as the standard document municipalities rely on in reviewing proposed commercial forest practice activities. It does not replace nor contradict the guidance given in the authoritative CT DEP brochure "Agriculture, Forestry and Wetlands Protection in Connecticut", which can be found online on the CT DEP website.

The information required to complete this Form is purposely straightforward. However, if you have additional questions on its use, please feel free to contact any of the endorsing organizations directly (contact information on the following page). Thank you very much.

Sincerely,

Bill Bentley, 2006 Chair, Society of American Foresters—CT Chapter

Eric Hammerling, Executive Director, Connecticut Forest & Park Association

Joan Nichols, President, CT Professional Timber Producers Association

Donald Tuller, Board President, CT Farm Bureau Association

¹The Forest Practices Advisory Board was authorized by the Connecticut Forest Practices Act of 1991.



775 Bloomfield Avenue
Windsor, CT 06095-2322
Phone: 860/768-1100
Email: info@cfba.org
Web: www.cfba.org



16 Meriden Road
Rockfall, CT 06481-2961
Phone: 860/346-2372
Email: info@ctwoodlands.org
Web: www.ctwoodlands.org



P.O. Box 71
Lebanon, CT 06249
Phone: 860/948-0432
Email: info@timproct.org
Web: www.timproct.org



P.O. Box 149
North Granby, CT 06060-0149
Phone: 860/844-0008
Email: billbentley@cox.net
Web: www.nesaf.org

NOTIFICATION OF TIMBER HARVEST

Town: _____

Date: _____

Property Location: _____

List all parcels:

Assessor's Info:

Map	Block	Lot

OR:

Unique ID

Total acreage of property(s): _____

Total acreage of harvest area: _____

Landowner(s) of Record: _____

Mailing Address: _____

Town: _____ Zip _____

Phone () _____

E-mail: _____

Primary Contact: _____

Mailing Address: _____

Town: _____ Zip _____

Phone () _____

E-mail: _____

Note: Timber harvesting is a *Permitted as of Right Activity* pursuant to the Inland Wetlands and Watercourses Act, except for those practices regulated under Section 22a-36 through 22a-45 of the Connecticut General Statutes.

Is there a current forest management/stewardship plan for this property? ☐ Yes ☐ No

This timber harvest has been prepared by a State of Connecticut certified:

(Check one): ☐ Forester OR ☐ Supervising Forest Products Harvester

Forest Practitioner Certificate #: _____

Name: _____

Address: _____

E-mail: _____

Phone #: (Business) _____ (Cell) _____

Property Boundaries:

Bounds are marked: ☐ Yes ☐ No

Timber Harvest Boundaries:

Have been marked or flagged: ☐ Yes ☐ No

Have owners of all lands within 100 feet of the harvest area been notified via first-class mail prior to filing this "Notification of Timber Harvest"? ☐ Yes ☐ No

Estimated starting date of timber harvesting operations: ____/____/____

Description of Timber Harvest:

Objective: _____

Treatment: _____

Amount of forest products to be harvested:

_____ Board feet _____ Cords _____ Cubic feet _____ Tons

How have the trees to be harvested been designated?

☐ They have been marked with paint at eye level and at ground level. Paint color(s): _____

☐ They have not been marked

This is not an official CT DEP form but it has been endorsed for town usage by: CT Farm Bureau Assoc., CT Forest & Park Assoc., CT Professional Timber Producers, Society of American Foresters - CT Chapter, and others.

SOIL, WATER AND INLAND WETLANDS RESOURCES

Actions Being Performed On This Land

(Check all that apply and locate on attached Timber Harvest Area map -- see information below on maps.)

<u>Crossings / Clearing</u> <input type="checkbox"/> Temporary stream/drainage crossing <input type="checkbox"/> Temporary wetlands crossing <input type="checkbox"/> Removal of trees in wetlands <input type="checkbox"/> Removal of trees in upland review area	<u>Erosion and Sedimentation Control Measures:</u> <input type="checkbox"/> Installation of water bars <input type="checkbox"/> Grading <input type="checkbox"/> Seeding <input type="checkbox"/> Other (describe below)
<u>Log landing area:</u> <input type="checkbox"/> anti-tracking pad <input type="checkbox"/> curb cut	<u>Roads</u> Are new roads, other than skid trails, to be constructed for transport of logs or other activities associated with this harvest? <input type="checkbox"/> Yes <input type="checkbox"/> No

Describe in further detail as necessary:

The following maps are attached to this "Notification" (Check all that apply)

- ☐ Copy of USGS topographic map with property outlined
- ☐ Copy of Assessor's map with property outlined
- ☐ Timber Harvest Area map showing outline of harvest area, main skid road locations, log landing area, truck access roads, inland wetlands, watercourses and any crossings

The undersigned hereby swear that the information contained in this application is true, accurate and complete to the best of my (our) knowledge and belief and that the timber harvest will be conducted in accordance with the specifications outlined in this "Notification of Timber Harvest."

Signature of Landowner(s): _____ Date: _____

Print/Type Name: _____

Signature of Landowner(s): _____ Date: _____

Print/Type Name: _____

Signature of Certified Forest Practitioner: _____ Date: _____

Print Name: _____

Certificate #: _____ Expiration Date: ____/____/____

Complete and Submit to:

- The Municipal Inland Wetlands Agency/ies in which the property is located, and
- A courtesy copy of this Notification Form should also be sent to The Department of Environmental Protection, Division of Forestry
79 Elm Street, Hartford, CT, Tel: (860) 424-3630

This is not an official CT DEP form but it has been endorsed for town usage by: CT Farm Bureau Assoc., CT Forest & Park Assoc., CT Professional Timber Producers, Society of American Foresters - CT Chapter, and others.



The Potential Economic Benefits of Riparian Buffers

by Niev Duffy, Ph.D., Eastern Economic Research, Inc.

This article, which is a summary of existing research on riparian buffers, has been modified from its original format for The Habitat. The full set of citations for the supporting research can be found at caciwc.org.

INTRODUCTION

Opponents of environmental protections on private residential and commercial property, such as the requirement of riparian buffer zones, are often concerned that restrictions will lower property values. In fact, there is growing evidence to suggest that modest and evenly enforced environmental protections within an entire wetlands area can substantially enhance property values. Studies also suggest that environmental protections can boost state revenues by enhancing the desirability of communities and recreational areas, while limiting the unforeseen growth in state expenses that often accompanies expanded residential and commercial development in watershed areas.

The economic benefits of the ecological services provided by Connecticut's rivers and wetlands run in the tens of billions of dollars annually. Maintaining a minimum level of protection for these assets can help to ensure that the rapid expansion of residential and commercial development does not negate the benefits of economic growth.

POTENTIAL ECONOMIC BENEFITS

Studies have demonstrated that riparian buffers are a relatively low cost, easily enforceable and effective means of delivering valuable ecological services - such as the prevention of diffuse source pollution, protection of water supplies, flood mitigation, and aesthetic enhancement of communities and recreation areas. The spread of residential and commercial land development is frequently accompanied by an increase in water pollution when fertilizers, sediment, chemicals and other contaminants

are carried from lawns and pavement into neighboring wetlands by storm water runoff. Numerous studies document the important role that riparian buffers can play in reducing diffuse source pollution that may otherwise result in eutrophication, increased toxicity, and loss of water clarity. Studies have also demonstrated that protection is far more efficient than clean-up.

The ecological services provided by Connecticut's rivers and wetlands are worth many billions of dollars annually. The natural protection that riparian buffers offer to the quality of these assets can safeguard and enhance the desirability of communities and recreational areas, protecting property values and promoting tourism.

Recreational

Clean water, abundant and diverse wildlife, healthy fish stocks, and scenic views are a few of the assets that riparian buffers protect. This natural capital leads to a steady stream of returns in the form of tourism and recreational income and related tax revenue. Both the volume and range of outdoor recreational activities has increased dramatically in the United States over the last few decades. For example, expenditures associated with wildlife-watching increased by over 20% in the U.S. between 1995 and 2006, from \$37.7 billion to \$45.7 billion (in 2006 dollars). In 2006, fishing, hunting and wildlife watching activities by Connecticut residents alone generated \$755 million in

Buffers, continued on page 3

Inside ★	Pg.
Municipal Farmland Protection	2
Journey to Legal Horizons	4
Forest Stewardship Issues	8
CACIWC Membership	11
DEP Open Space Grants	16

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Editor: Tom ODell

Associate Editor: Ann Letendre

Correspondence to the editor, manuscripts, inquiries, etc. should be addressed to *The Habitat*, c/o Tom ODell, 9 Cherry St., Westbrook, CT 06498. Phone & fax 860.399.1807 or e-mail todell@snet.net.

Working Together to Preserve Connecticut's Farmland

by the Connecticut Farmland Trust



Mitchell Farm overlook, Salem, CT

Connecticut's farmland is disappearing at the alarming rate of 8,000 acres a year. Fertile, highly productive land is being converted to residential and commercial uses at one of the fastest rates in the country -- in less than 20 years, we have lost 21% of our state's farmland. If this rate of conversion continues, all of our remaining farmland will be gone in less than two generations. This is why it is so important for organizations to work together to protect our state's working lands.

"Towns and local land trusts are becoming more and more active in farmland preservation within their communities. As a result, stronger partnerships are being formed with the combined resources of local, state and federal programs," says Henry Talmage, Executive Director of Connecticut Farmland Trust. "CFT has always been about collaboration and we take great pride in our ability to complete projects through teamwork and leveraging of funds."

The Connecticut Farmland Trust (CFT) is the only private, statewide nonprofit conservation organization dedicated exclusively to protecting Connecticut's farmland. CFT holds agricultural conservation easements that protect 1,766 acres of farmland around the state, has assisted partners in the preservation of 157 additional acres, and serves as a leading resource on conserving Connecticut's working farmland. By working with like-minded groups and pooling our resources, CFT is able to preserve more land than we would be able to do alone. These collaborations benefit all of us.

Everyone in Connecticut reaps the benefits of farmland. From producing fresh, local food to providing pastoral vistas, farms are a vital part of our history, culture, and economy. Connecticut farms contribute \$2 billion annually to our local economy, provide a myriad of environmental benefits, and help balance town budgets. Studies have documented that farms require less than 50 cents in town services for every

Farmland, continued on page 13

Reminder

Dues for fiscal year July 1, 2009 - June 30, 2010 are due. Check page 11 to see if your commission has submitted its payment.

Buffers, continued from page 1

recreation related revenues in Connecticut. Another \$9 billion was spent by tourists visiting the state, generating over 1 billion in state and local tax revenue, and employing 1 in 15 workers in the state.

But Connecticut's recreational and tourism dollars are heavily reliant upon the maintenance of healthy ecosystems. For example, numerous studies emphasize the importance of preserving the natural habitat of fish - including shade trees, submerged grasses and other food sources - to maintaining healthy fish populations in spots popular among anglers. Numerous studies have found that individuals express willingness to pay substantial sums to protect the regional environment. One study in the 1990s found particularly high dollar values placed on improving water quality to a "swimmable" level.

Loss of natural riparian buffers can lead to pollution of streams by sediment, nutrients, and other contaminants, destroying fish habitat and closing swimming areas. The 1994 EPA National Water Quality Inventory Report to Congress identified 374 sites in 22 states where recreation was restricted due to poor water quality." In a 2009 survey of recreational boaters on Candlewood Lake in Connecticut, over half of respondents stated that poor water quality due to invasive species was "a major problem". And almost three quarters of boaters who owned lakefront property found it to be a major problem, indicating that they were the group most likely to benefit from riparian buffer zones designed to prevent such eutrophication.

Over the last two decades, an 18.2% increase in the land area covered by construction in Connecticut has been accompanied by a 14.5% decline in farmland, 6.5% decline in deciduous forest, 6.9% decline in area covered by water, and a 5.5% decline in forested wetland; trends that highlight the importance of safeguarding the remaining wetlands from environmental degradation. In Connecticut, an extensive study of coastal areas suggests that landuse restrictions within a 100 ft wetland buffer zone has helped to reduce the loss of natural vegetation during residential and commercial land development.

Aesthetic Value

Historically, Connecticut's great natural beauty and well-preserved historical villages have ensured it some of the most prized real estate in the world. Its very desirable communities have attracted a relatively high-

skilled, high-income population that, in turn, has attracted a dynamic commercial sector. The desirability of communities is strongly influenced by the surrounding environment, and the health of neighboring wetland ecosystems plays a particularly important role. Reduced water clarity, algae blooms, and eutrophication have been shown to greatly diminish adjacent property values. And in regions where water quality has been allowed to deteriorate substantially as a result of over-development, studies have documented dramatic declines in regional property values.

Environmental restrictions on privately held land are often fought by those with short-term interests in the sale of local residential and commercial development, who fear that new restrictions will diminish market profitability. Though there is little evidence of diminished individual property values when all properties are similarly restricted, or regional economic loss, studies do show that land use restrictions that improve water quality often lead to substantial increases in property values both on and near wetland areas.

By maintaining a minimum level of protection for rivers and wetlands, riparian buffers can also help to mitigate a number of unintended consequences of rapid residential and commercial development that can drain state budgets, such as increased flooding, declining water tables and increasing strain on public water systems, as well as the spread of invasive plant species. Failure to address these issues can negate many of the benefits of economic growth.

Drinking Water

Safe, dependable supplies of groundwater - for residential, agricultural, commercial and public uses - are crucial to a healthy economy. Among the many ecological services offered by riparian buffers is their ability to help protect and restore groundwater reserves. Public agencies spend large sums each year to obtain, treat and maintain water supplies. The loss of ecological services provided by riparian buffers can increase these costs. Increased sedimentation leads to the need for dredging and more frequent repair and replacement of equipment. Increased runoff of nutrients and other contaminants from lawns, fields, and pavement into wetlands increases the need to treat drinking water with chemical coagulants and disinfectants. And contaminants can also cause costly depreciation of commercial equipment. Expanding riparian buffers has the potential to limit these costs.

Buffers, continued on page 12



What to Do While Applications are Hibernating

Tom O'Dell asked me to write a column on what wetlands agencies could be doing while awaiting the return of "business as usual." In this column I share two thoughts: one task for the present and planning for the future.

Part I

If your wetlands agency has not amended its regulations for a while or if you're just not sure if your agency has kept its regulations current with state law, start with this task. There are a few tools that will really streamline this job. Depending on the size of your agency, you could consider setting up a smaller group to meet on these issues. Of course, the meetings would need to be noticed according to the Freedom of Information Act, be held in a public place (i.e., not in someone's home), be open to the public, have minutes created, etc. The major tool to rely on is the 2006 version of the DEP Model Regulations. The model regulations are available on the DEP website at: http://www.ct.gov/dep/lib/dep/water_inland/wetlands/modelregsfinalof4thedition.pdf. The regulations begin with a list of revisions on pages 2 through 6. The list also includes the reason for the change in very succinct language. This will come in handy when you need to state on the record during the public hearing the reason for the proposed changes. The revisions clarify prior regulations, or are mandated by an amendment to the state law. Within the 2006 model regulations themselves it is very easy to distinguish the changes, as new or revised language is underlined. I have been before too many agencies in the past six months with outdated regulations. Here are some of the procedural and substantive problems in some towns' existing regulations.

Date of receipt: The law no longer allows you to require submission three business days prior to the next regularly scheduled meeting. The date of receipt is now the day of the next regularly scheduled meeting immediately following the day of submission.

Regulated activity: The Appellate Court in 2003 ruled that in order to have authority regulate activities that take place outside of wetlands or watercourses for their effect on those resources the agency must first have adopted a regulation establishing the authority to regulate conduct in the upland. The DEP has proposed language to establish that authority. Check the definition section of the model regulations, § 2.1. If you're fuzzy on the legal reasoning of that case, you can read my blog entry of December 28, 2009 addressing the case, at www.ctwetlandslaw.com.

Aquatic, plant or animal life and habitats in wetlands or watercourses: Maybe some agencies have had a lot of turnover since 2003 and don't remember the outcry when the Supreme Court held that wildlife did not fall within the protection of the wetlands act. Then the legislature amended the statute in 2004, upholding the Supreme Court decision in part and reversing it in part. You will not be able to properly figure out what to do with wildlife considerations without the statutory language in your regulations. It is not intuitive; it was a political compromise. You will need to have the language as you review applications and decide how to consider wildlife impacts. Want to brush up on the wildlife controversy? You can read my blog entries of December 30, 2009 and December 31, 2009 at www.ctwetlandslaw.com.

Right of agency to enter onto private property: In prior versions of the DEP model regulations, there seems to have been language that suggested that agencies or their agent had the authority to enter onto private property without the consent of the property owner. The 2006 version clears up that misnomer.

To complete the tasks, the DEP has made available online all of the legislative advisories. From the DEP Inland Wetlands and Watercourses main page, click on "Legislation, Regulation and Case Law." You would only need to review the advisories from 2006 to the present, as the earlier advisories are already incorporated into the 2006 model regulations.

Legal, continued on page 6

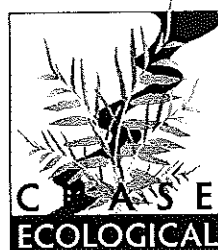


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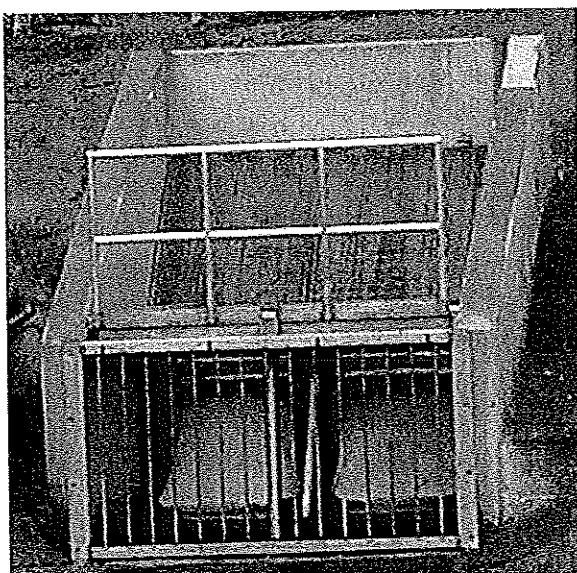
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I note that DEP has not posted an advisory for the legislative change in the 2009 session. Last year the legislature amended the act to state that wetlands permits issued from July 1, 2006 to July 1, 2009 "shall expire not less than six years after the date of such approval" and that the total period of time such permit may be in existence, including renewal time, cannot exceed 11 years. To read more about the change, go to the January 26, 2010 entry on my blog at www.ctwetlandslaw.com.

One more task derived from your regulations: Almost all agencies have a section equivalent to § 4.4 in the model regulations which requires any person wishing to engage in an exempt activity to notify the agency "on a form provided by it." It is the rare agency that has developed that form. Some agencies invite letters with supporting documentation. Some use the application for regulated activities -- which makes me shriek, because it prompts the agency to begin an inappropriate inquiry. The application form for regulated activities delves into areas that are irrelevant to an agency's consideration of *whether* it has jurisdiction. Once an agency has established its jurisdiction, it is appropriate to look into alternatives and other factors for consideration. Why not craft a form which asks for facts that establish whether or not the person's activities fall within the exemption?

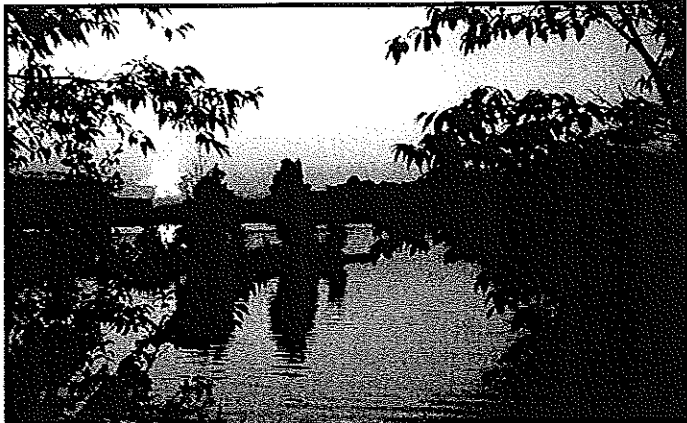
Part II

Training of individual agency members, on the one hand, is a personal matter. A member is asked to give up time from other personal or family responsibilities or pleasures to become and to stay an informed member. But it is also an agency concern, as well as a public one. The wetlands act requires at least one member of the agency or staff to have completed the DEP comprehensive training program. DEP is required to allow one person from each town to attend the entire training program at no cost. Of course, the notion that only one person be trained is an inadequate benchmark. It is merely a point of departure.

Training should not be a matter that occurs only when - and if - agency members happen to sign up and attend.

Priority #1: The training of members within a calendar year should be a matter of business to be discussed early in the year.

Legal, continued on page 7



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Legal, continued from page 6

I believe it should be placed on the agenda once a year to discuss the year's goals for training agency members. The discussion can establish who has completed what aspects of existing training. Are members feeling overcommitted time-wise between training and agency duties? An idea that was discussed at the January, 2010 Council on Environmental Quality meeting was to excuse members from attending an agency meeting, as long as the agency would still have a quorum to proceed with pending business, so that the member could spend the equivalent time in training.

Priority #2: Any member who has not attended Segment I and the basic legal training should strive to do so. When I routinely offered Segment I legal training while at the Attorney General's Office, I often had agency staff people with many years of experience state that they learned something new at Segment I.

Priority #3: A majority of agency members should strive to attend the DEP Segment II Legal Update or the CACIWC annual meeting workshop on Legal Update. In fact, your agency should try to be in attendance at both. (Different members could go.) The DEP's Segment II is generally in May and June, while

the CACIWC meeting is in November. This year almost all of the Appellate and Supreme Court cases covered in the CACIWC annual meeting workshop had been issued in the late summer and fall, too late to be covered in the DEP Segment II training.

And, yes, I agree that folks should go get the technical training as well. I just want to stress the need for the agency to stay up to date on the changes in the law. That will not happen merely by serving on a commission for twenty years. It is not a matter of experience; it is a matter of knowledge.

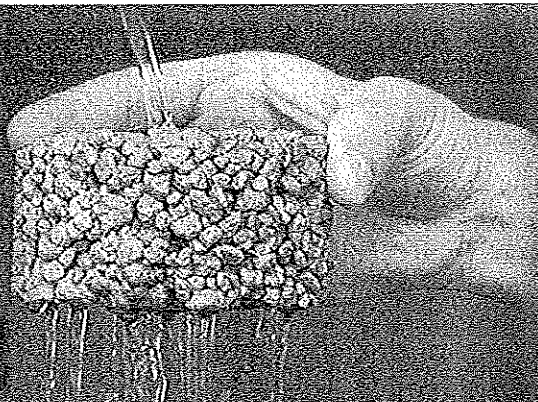
Priority #4: The statute requires the follow-up step that the newly trained member summarize the content of the training program at an agency meeting. At a minimum that should include distribution of any written materials provided at training.

Up to date regulations and forms, and current knowledge of the law, are the best bases for being prepared for the return to "business as usual."

Attorney Janet P. Brooks is in solo practice in East Berlin and has started a blog on wetlands law, which you can read at www.ctwetlandslaw.com.



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Editor's Note: Conservation Commissions take note - stewardship of municipal and private protected open space is a challenging responsibility. The following article discusses the consequences of ignoring that responsibility and encourages action to protect against unintended consequences.

Biological Integrity Issues in Connecticut's Upland Forest Ecosystems *by Emery Gluck, Forester, CT-DEP*

In Connecticut we are fortunate to have a significant forested landscape which forms an aesthetically pleasing backdrop to our daily lives and provides important ecological functions which contribute to our quality of life. Unfortunately, numerous issues have developed that threaten the forest's ability to sustain these valuable environmental services. This article summarizes the main impediments to sustainable upland forest ecosystems.

Forest Fragmentation

As development starts to devour a continuous forest, it fragments the remainder. Edge habitat occurring at the forest /development interface is inhospitable to many species of wildlife. The edge habitat is well suited for skunks, raccoons, dogs, cats and other animals that prey upon the eggs of ground nesting birds. Also, brown-headed cow birds, a brood parasite that lay their eggs in other birds' nests, are more prevalent the closer to the edge. The host bird raises aggressive cowbird fledglings which crowds out its own fledglings. Brood parasitism and nest predation lead to the inability of smaller fragmented forests to sustain many interior bird species. Additionally, non-native invasive plants are usually more abundant in fragmented forests. Generally, habitat quality declines with the size of the forest. More information about forest fragmentation can be found on the University of Connecticut's Center for Land Use Education and Research (CLEAR) web site, (http://clear.uconn.edu/projects/landscape/forest_frag.htm).

The aggregation of a large continuous protected forest is often a more valuable conservation strategy than preserving smaller isolated forests. Planning tools such as cluster housing and transferable development rights have the potential to retain a modest to significant amount of continuous forest while allowing for limited residential and commercial growth.

Invasive Plants

"Non-native invasive species pose a serious risk to North American forest ecosystems, threatening to change existing ecological trajectories, suppress rare and endangered native species, reduce productivity and biodiversity and damage wildlife habitat."¹

Numerous non-native (exotic) invasive plants have gained a well established foothold and threaten to become pervasive in Connecticut forests. Many are characterized by "hypercompetitive behavior" that includes earlier leaf out than native competitors, the ability to re-sprout vigorously and produce large amount of seeds that are spread by birds and deer.

Non-native invasive plants that can be ecologically disruptive in Connecticut's forest include Tree-of-Heaven, Japanese barberry, and Oriental bittersweet. The former has been documented to cause heart attack-like symptoms if a person's skin is exposed to an excessive amount of the plant's sap. The incidence of black-legged ticks, a major vector for Lyme disease, is greater in dense thickets of Japanese barberry. The thickets provide an ideal refuge for the tick carrying white footed mouse. Bittersweet vines aggressively climb trees and monopolize forest understories. The vines aid in bringing down supple trees while extensive mats in the understory smother tree seedlings and other native understory vegetation.

The foothold these invasive plants have gained may turn into a stranglehold without considerable intervention. The next hurricane may greatly speed up the hostile takeover as significant disturbance in the upper forest canopy will provide sunny new ground for the germination of invasive plant seeds. Forest harvesting is thought to promote the invasion of non-native invasive plants where there is a nearby seed source. But one study found no increase in abundance of barberry after low- to moderate intensity selective harvesting.

Complete control of exotic invasive plants is unlikely. Herbicides provide the most definitive control but often meet public opposition. Uprooting smaller invasive plants is possible but unlikely to cover extensive areas; repeated cutting or burning immediately after leaf out kills a significant proportion if done in the same growing season.

For more information on invasive plants go to the Connecticut Invasive Plant Working Group (CIPWG) web site, <http://www.hort.uconn.edu/CIPWG/>.

Forest, continued on following page

Deer

In addition to aiding the spread of invasive plants by depositing their seeds throughout forest, an abundance of deer may aid in changing the composition of the forest. Deer often browse heavily on oak seedlings but avoid species such as black birch, which contains the same chemical component as the muscle rub Ben Gay. Nearly 100 threatened or endangered species are browsed by white tailed deer. They have been known to browse the native understory plants so much that it allows an opening for invasive plants to germinate. Conversely, where deer had been fenced out, the understory was lush with native plants.

Deer populations were almost extirpated with the loss of mature forests and unrestricted hunting in the late 1800s. Citizens reported only 12 deer in Connecticut in 1893. With increased suburbanization, maturing oak forests, and a decline in hunting, the deer population has grown exponentially. Their population is currently estimated at 65,000.

Significantly expanding responsible hunting, reducing forest fragmentation by minimizing conversion of forests to conventional subdivisions could help stabilize an excessive deer population and revitalize the plants favored by deer.

Lack of Appropriate Disturbance

Some upland forest ecosystems have evolved to sustain themselves after disturbances such as fire, hurricanes and tornadoes. These disturbances create a temporary open environment where sun-loving plants could perpetuate themselves and their offspring could outgrow competing shade tolerant species. Native Americans used to frequently burn extensive areas of the forest to create an environment that attracted their game animals, increased berry production, and provided numerous other benefits necessary for their survival. Pre-settlement forests experienced fires exponentially more frequently than today's forests. Fire that sustained oak ecosystems for thousands of years has been extinguished as fire preventive systems evolved to protect people and houses that now fill the increasing fragmented forest.

Today's maturing oak forest originated after extensive clearcuts, fires, chestnut blight and farm abandonment from about a century ago. The prolonged absence of similar events and excessive deer browse has started to facilitate the slow transformation of much of Connecticut's oak forest into shade tolerant birch, beech and maple forests. Oak seedlings are found in the understory of an intact forest after an acorn crop but most die out within a few years because of lack of adequate sunlight. Survivors are severely hindered by overtopping competitors. Oak seedling survival on ridge-tops and droughty soils where competition is limited is an exception. The ability of a new generation of oak to graduate to the forest canopy is severely limited under current conditions.



Nehantic State Forest, Salem – This oak forest received a regeneration harvest and controlled burn. Grasses become established after such repeated disturbances. Their seeds provide an important food source for the fall bird migration. Forests near Native American villages were probably burned frequently creating an open park-like forest. The fires killed thinned barked trees and shrubs. The older oak and chestnut trees were protected from low intensity fires by their thick bark. Younger oaks re-sprouted more vigorously than other hardwoods killed by the fires.

The potential future displacement of oaks has enormous ecological consequences as around 50 animal species depend upon acorns for their primary source of protein. Oak forests host more species and a higher abundance of birds than maple forests. Oaks cumulatively host over 500 species of butterflies and moths (Lepidoptera). Larvae, the immature form of Lepidoptera, are an important food source for birds.

Severe fire and other disturbances historically sustained a small part of the landscape

in young forest habitat. The majority of the forest landscape should be made up of sawtimber-dominated forests in order to provide habitat for the bulk of the wildlife species. (Sawtimber are trees greater than 11" in diameter measured 4.5' above ground level). At the same time, very young forests provide requisite dense shrubby habitat for 22 bird species and four mammal species in New England, including numerous declining species such as blue-winged warbler, chestnut-sided warbler, New England cottontail and bobcat. The unique assemblage of dense cover, herbaceous vegetation, and associated insects is short-lived as the habitat structure changes as the forest ages. Forests as young as eight years old have already lost their habitat value for some species. A frequent infusion of relatively small but severe disturbances is necessary to sustain populations of those animals that depend upon this habitat.

Forest, continued on page 15



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Flood Control

By impeding and absorbing flood waters, riparian forest buffers reduce the damage caused by floods. And by reducing the sedimentation of rivers and streams, which fills streambeds and makes them more prone to overflowing, riparian buffers also reduce the frequency of flooding. According to one study, reducing runoff by 10% within a watershed could reduce flood peaks with a 2 to 5 year return period by 25% to 50%.

According to the National Flood Insurance Program (NFIP), the value of flood losses in the U.S. between 1996 and 2005 totaled over \$2.4 billion. Rapid land development and the loss of riparian buffers have the potential to increase these costs. Ironically, where new land development leads to increased flooding, it has the potential to drive down the value of existing housing stocks in flood prone areas.

POLITICAL FEASIBILITY AND "WILLINGNESS TO PAY"

Numerous studies find that Americans express a willingness to pay substantial sums for programs that will improve water quality. While such studies might overstate the true willingness to pay for ecological services, the notable consistency of such results indicate a very real concern over the availability and security of safe drinking water. One study that explored the difference between the hypothetical willingness to pay among survey participants and taxpayers' actual willingness to pay for a river-front improvement project, found that there was no statistically significant difference between the two. Since the benefit/cost ratio to households of wetland restoration projects is often very high, it is perfectly rational for residents to be willing, if not eager, to pay for such projects.

Editors Note: The preceeding article is the first extensive literature review published in The Habitat. The article was requested by the Editor to provide supporting evidence of the economic value of riparian buffers. We would appreciate comments on its value to commissioners and whether or not other literature reviews should be considered for The Habitat.

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Chemical Remediation in Wetlands: Not Your Average Cleanup

By Wayne H. Bugden, LEP
Director of Environmental Services, CME

When remediating contaminants in sediment, how "clean" is clean enough? Wetlands are very sensitive to pollution, but Connecticut remains without a standardized regulatory approach to this problem. There are many reasons for this, including:

Unique Physical and Chemical Properties: Sediments range from dense sands and silts, to loose organic peats. Some bind tightly to heavy metals while others contain natural organic compounds that laboratories may

mistake for petroleum. Such variability makes it impossible to develop "one-size-fits-all" cleanup standards.

Uncertain Source(s): Finding the "responsible party" can be tricky if a wetland receives runoff from multiple properties. Investigators can use forensic techniques to "fingerprint" contamination, but success depends on careful planning and experience.

Need to Balance Risks: Sometimes, removing contamination may cause more damage than leaving it in place. Knowing how, and when, to remediate wetlands cannot be determined using a State-wide policy. Instead, ecological risk assessments must weigh the pros and cons of all alternatives.

Connecticut DEP is working to develop sediment cleanup criteria, but it is unknown when, or if, these standards will go into effect. Meanwhile, wetland contamination

problems must be carefully evaluated to determine if remediation is needed. When

it is, the cleanup professionals must consider the wetland's many unique properties to avoid damaging its essential functions and values.

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Farmland, continued from page 2

dollar they generate in local taxes -- while residential development costs towns more than one dollar for every dollar of revenue generated.

Connecticut Farmland Trust assists towns and land trusts by offering technical assistance and guidance in the specific area of agricultural conservation easements. These easements give landowners the flexibility to change their operation and practices to meet future agricultural needs. CFT's criteria for easements focus on viable, active farms with prime and important agricultural soils. There is no restriction on property size. CFT may also contribute funds toward the acquisition of an easement and may sometimes hold the easement.

"There is a big difference between open space and agricultural easements, and we are happy to provide

towns and land trusts with guidance on conservation language that includes specific terms to help protect farmland," says Elisabeth Moore, CFT's Conservation Director. "Who gets the credit for preservation or holds the easement on the property isn't important. The most important thing is protecting Connecticut's remaining farmland."

Organizations contact CFT for assistance and partnerships, but CFT also seeks out groups to collaborate with when their preservation projects fit with our mission of protecting farmland. We are currently working with the Town of Branford to preserve a farm and are collaborating with the Town of Lebanon to preserve three farms. Below is a listing of farms Connecticut Farmland Trust has preserved with help from towns and land trusts:

Photos courtesy of Connecticut Farmland Trust



Vanishing Geese Farm, Durham

Vanishing Geese Farm, Durham

Preserved in 2009

43 acres of hay & pasture, Scottish Highland cattle, chicken, and honey bees

Collaboration with Durham Conservation Commission

Phillips Farm, Southbury

Preserved in 2004

20 acres of support land for local dairy

Collaboration with Southbury Land Trust

Lovdal Farm, Southbury

Preserved in 2005

36 acres of support land for local dairy

Collaboration with Southbury Land Trust

On the Hill Farm, Salem

Preserved in 2005 & 2006

76-acre beef and hay farm

Small seasonal farm stand open to the public

Collaboration with Salem Land Trust and the USDA-Natural Resources Conservation Service's Farm and Ranch Lands Protection Program.

Hunt Hill Farm, New Milford

Preserved in 2008

40-acre Christmas tree farm

Seasonal farm stand - open to the public

Collaboration with Weantinoge Heritage Land Trust and the Town of New Milford

Marvel & Mitchell Farms, Salem

Preserved in 2009

206 acres of hay & pasture

Collaboration with The Nature Conservancy



Osuch Farm, Watertown and Bethlehem

Osuch Farm, Watertown and Bethlehem

Preserved in 2007

40 acres of support land for local dairy

Collaboration with Watertown land trust

Little Pond Farm, Stonington

Preserved in 2010

96 acres of corn & hay

Collaboration with Town of Stonington

For more information about Connecticut Farmland Trust and our protected farms, please visit www.CTFarmland.org.

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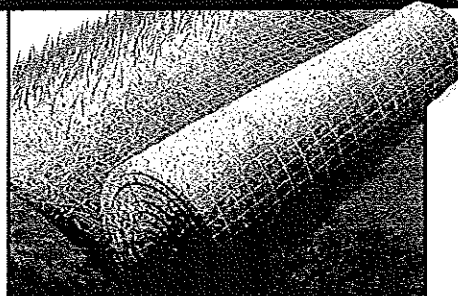
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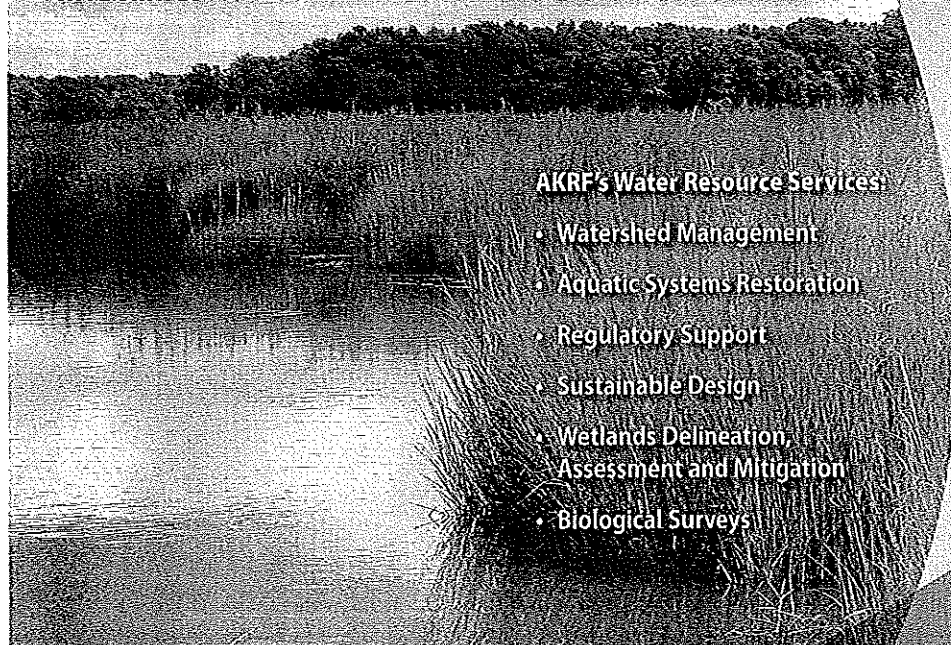
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Forest, continued from page 9

The maintenance of disturbance-dependent ecosystems is a difficult task in a mostly suburban state. Controlled burns can be an effective tool, but there is very limited opportunity to implement and they pose an element of risk. Mechanical grinders or masticators can create young forest habitat by grinding up a forest whose trees that are approaching 7" in diameter. Though mechanical treatments can mimic historic disturbances such as fire to a certain extent, they are unlikely to capture the full ecological value of a natural disturbance. These treatments are usually expensive. The Wildlife Habitat Incentive Program (WHIP) may provide federal cost sharing for controlled burns and creating young forest habitat. More information about creating young forest habitat can be found through the "Coverts Program" from the UConn Cooperative Extension's web site, <http://www.canr.uconn.edu/ces/forest/coverts.htm>.

The most cost efficient method for maintaining a disturbance dependent ecosystem often involves forest management. Forest management also often entails cutting trees too small to market but necessary for freeing up overtopped oak seedlings and saplings. It should be noted that some harvests can be ecologically regressive. Harvests in oak forests can accelerate succession towards other species if only the valuable

trees are harvested and most of the small non-oak trees are left. Appropriate forest management can sustain an ecologically viable forest and, in addition, yield wood products to offset management costs.

Forest Management Assistance


DEP Division of Forestry conducts a detailed assessment and extensive planning before implementing forestry operations on state forests. Likewise, it is recommended that landowners and land trusts have a stewardship plan prepared by a certified forester to provide a detailed evaluation of the forest resources and management options before any harvest. The Connecticut Division of Forestry offers a service where their foresters can provide a limited initial assessment at no charge to the landowners.

The complex social and biological issues confronting Connecticut's forest are in the process of being collaboratively addressed by stakeholders in the 5-year revision of the Connecticut Statewide Forest Resource Plan. More information on forest management can be found at the DEP Division of Forestry Website: http://www.ct.gov/dep/cwp/view.asp?a=2697&q=322792&depNav_GID=1631&depNav=

For the most part, the forest is not sustaining viable populations of the full array of fauna and flora native to the area. The forest is being compromised because the cumulative effect of our collective actions and inactions brought unintended and often unnoticed consequences. It will take a mindful concerted effort to substantially change this course.

End Notes

¹Chornesky et al 2005. Science priorities for reducing the threat of invasive species to sustainable forestry. *Bio Science* 55(4): 335-348.

This article and the full set of supporting citations can be found at caciwc.org. 



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OPEN SPACE GRANT ROUND ANNOUNCED

Governor Rell announced that funds are available to assist cities and towns and land conservation organizations with the purchase and preservation of open space lands through the state's Open Space and Watershed Land Acquisition program. **The deadline for applications is Monday, May 3, 2010.** Be sure to use the application dated January, 2010. The pdf for the application can be found on the DEP website at http://www.ct.gov/dep/lib/dep/open_space/open_space_grant_round_application.pdf, or call Dave Stygar (860)424-3081 or Allyson Clarke (860)424-3774 at DEP. Awards are expected to be announced in the fall of 2010.

DEP's 2010 MUNICIPAL INLAND WETLANDS COMMISSIONERS TRAINING PROGRAM



The DEP's 2010 Municipal Inland Wetland Commissioners Training Program will begin in mid-March with Segment 1. Brochures regarding the training program, along with a program voucher allowing one person to attend for free, were mailed to each municipal inland wetlands agency by February 19th. Further, online registration and information is available at <http://continuingstudies.uconn.edu/professional/dep/wetlands.html>. If you have additional questions regarding the 2010 Municipal Inland Wetland Commissioners Training Program please contact Darcy Winther of the DEP's Wetlands Management Section at (860)424-3063.

APPROVAL OF MINUTES

February 2, 2010 & March 16, 2010

Inland Wetlands and Watercourses Meeting
INLAND WETLANDS AND WATERCOURSES AGENCY
MINUTES OF A REGULAR MEETING
TUESDAY, February 2, 2010

A Regular Meeting of the Enfield Inland Wetlands and Watercourses Agency was held on Tuesday, February 2, 2010 in the Enfield Room, Enfield Town Hall, 820 Enfield Street, Enfield, Connecticut.

MEMBERS PRESENT: Douglas Maxellon, Chairman
Maryann Abar, Alternate (seated)
Joseph Albert
Karen Camidge
Brian Peruta
Robie Staples
Patrick Szczesiul, Alternate (seated)

MEMBERS ABSENT: Robert Lemay
Jo-Marie Nelson

ALSO PRESENT: Katie Bednaz, Wetlands Agent
Susan Berube, Recording Secretary

REGULAR MEETING

1. Call to Order: The meeting was called to order by Chairman Douglas Maxellon at 7:00 p.m.

2. Roll Call: Present were: Chairman Maxellon and Agents Abar, Albert, Camidge, Peruta, Staples and Szczesiul. Also present were: Katie Bednaz, Wetlands Agent and Susan Berube, Recording Secretary.

Agent Abar was formally welcomed to the IWWA by Chairman Maxellon.

Agents Abar and Szczesiul were seated by Chairman Maxellon as full voting members for this meeting.

3. Pledge of Allegiance: The Pledge of Allegiance was recited.

4. Executive Session

(Matters regarding specific employees, pending litigation, acquisition of real estate and / or matters exempt from disclosure requirements): None.

5. Public Hearing

a. **IW-533 - Town of Enfield** - is requesting a permit to reconstruct Post

Office Road and Town Farm Road beginning on Post Office Road, 175-feet east of Raffia Road and ending on Town Farm Road, 150-feet east of Abbe Road within the regulated area (Map 86 Lots:169, 155, 293, 291, 158, 150, 167; Map 71, Lots: 1, 25, 27; Map 68, Lots: 161, 164, 153, 151, 152, 197). Submitted 11/23/09, received 12/01/09, PPE 12/15/09, MPHCD 1/19/10, **EMPHCD 2/2/10**: Mr. Piya Hawkes, Director of Public Works and Mr. Jeff Lemay, consultant for the Town, represented the applicant.

Mr. Lemay provided additional information regarding the Agency's concerns over the proposed concrete washout. He stated that the applicant worked with Ms. Bednaz to come up with an acceptable method to deal with it. This has been added to the plans and will require that the contractor build the unit in the staging area.

The guide rail placement has been modified to deal with the cleanout access at the bridge. The plans have been changed accordingly and meet D.O.T. requirements.

Mr. Lemay stated that a new, full set of updated plans are now on file.

Ms. Bednaz noted that proposed condition #4 has been clarified and all plan dates were added to the revised proposed conditions of approval.

Agent Albert requested an email regarding the concrete washout update. Ms. Bednaz provided the page of the plans showing the detail on the concrete washout area.

Agent Staples stated that he walked the roadway and noted that currently the area does not have curbing. He asked if curbing will be installed as part of the project.

Mr. Lemay stated that curbing will be added in numerous areas to correct existing erosion problems. Some restrictions on curbing are based on D.E.P. comments, mostly on flat areas of the road.

Chairman Maxellon had asked about maintenance plans for the catch basins at a previous meeting.

Ms. Bednaz replied that the maintenance plan was included in a previous meeting packet.

At this time, the hearing was opened for public comment. No one in the audience came forward to speak for or against this project.

Ms. Bednaz stated that the plans are very large. She gave Agency members a choice of receiving a full set at this time or after approval by PZC.

It was the consensus of the Agency members to wait for a set of plans that

have been approved by the PZC.

Ms. Bednaz added that the most recently updated plans will be available on the FTP website.

A motion was made by Agent Staples and seconded by Agent Albert at 7:15 p.m. to close the public hearing on IW 533. Vote was 6-0-1(Abar). 19. A motion was made by Agent Camidge and seconded by Agent Staples to approve the application for IW 533 with the 18 standard conditions, in addition to those numbered 19 through 21:

19. The project shall be assigned a qualified erosion control monitor to conduct inspections of erosion control items for the duration of active construction. Said inspector shall be a Certified Professional in Erosion and Sediment Control (CPESC) or demonstrate equivalent experience. Inspections shall be conducted weekly during active construction and every three weeks when construction is inactive and soil remain exposed. Inspections shall be completed after each rain event of greater than 0.5" as determined by NOAA nearest rainfall gauge or every week, whichever comes first. The reports shall be submitted before the close of the workday each Monday, unless there is a holiday, when reports would be submitted the following workday. The content and presentation of the weekly reports shall be reviewed and approved by the IWWA Agent prior to the start of any construction activities.

20. No vehicles or fluid filled materials (including sani-cans, hydraulic equipment, etc.) shall be stored within 50 feet of wetlands or watercourses.

21. Concrete washout (including washing off chutes) shall be conducted within the contractor's staging area using the detail "Concrete Washout Basin" shown on drawing No. MDS-2, and any additional methods or devices which will ensure that the material is properly contained and that it is not allowed to seep into the soil. This material shall be properly disposed of off site.

Reason for approval was that the project will not have an adverse impact on inland wetlands and watercourses. Vote was 6-0-1 (Abar).

b. **(Cont. to 2/16/10) IW-534- Enfield Properties** - is requesting a permit to construct two office buildings and five residential apartment buildings on vacant lots and 153 South Road (Map 55, Lots 80, 93 & 99), within the regulated area. Submitted 12/15/09, received 12/15/09, PPE 12/29/09, **MPHCD 2/23/10**. This application was continued to the meeting of 02/16/10.

6. Call to Order of Regular Meeting: The regular meeting was called to order by Chairman Maxellon at 7:16 p.m.

7. Public Participation - Issues of concern not on the agenda: None.

8. Correspondence

- a. CAWS - Annual Meeting Invitation - "Wetlands: Impaired to Pristine" Ms. Bednaz reminded Agency members to inform her as soon as possible if anyone wishes to attend the annual meeting so that a reservation can be made.

Ms. Bednaz also noted receipt of the Fall, 2009 issue of "The Habitat" and recommended that members the article on page 1 "Mapping Groundwater Recharge for Land Use Planning and Storm Water Management". She feels it would be useful to include this type of information in the Town's POCD (Plan of Conservation and Development) to help determine where and where not to concentrate on development in town.

9. Commissioner's Correspondence:

- a. Site Visit Updates: Agent Camidge reported that she visited Petsmart and 5 Guys Restaurant recently and found minor issues at both places.

Behind the Petsmart building on Hazard Avenue, silt fence and hay bales were still in place but part of the fence, approximately 5' in length, had been knocked down. Also, some plastic sheeting was observed to be lying in the area of the wetlands.

At the 5 Guys site on Elm Street, 2 sections of silt fence located along the Asnuntuck College side have collapsed.

Ms. Bednaz took note of these and stated that she will contact the representatives of these properties.

Agent Albert stated that he would like to be kept informed via "cc" on any emails sent to Ms. Bednaz from Agency members.

Ms. Bednaz reminded members that this is acceptable as long as the email is in regards to an approved application. Members should not email each other regarding active applications.

Agent Staples asked if the Nitch property project is now complete.

Ms. Bednaz explained that the erosion and sediment controls are still in place. More grass needs to grow and become established. Once that is accomplished, the controls can be removed. The construction portion is complete; the site will need to be checked again in the spring.

Agents Peruta and Szczesiul volunteered to check on the Post Office Road project as it progresses.

Chairman Maxellon stated that the issue of Agency member identification cards is now in the hands of the Police Chief. Members still needing cards should hear from the police department soon.

Agent Camidge stated that she left a message for the shirt company but has not heard anything to date.

10. Approval of Minutes -January 14, 2010 & January 19, 2010: A motion was made by Agent Camidge and seconded by Agent Szczesiul to approve the minutes of the special meeting of January 14, 2010 as presented. Vote was 4-0-3(Peruta, Abar and Albert).

Agent Peruta asked for verification that he had requested information on mitigation for the Post Office Road project and also that Mr. Hawkes had indeed stated that permits did not need to be in place by March 2, 2010.

A motion was made by Agent Peruta and seconded by Agent Camidge to table the vote on the minutes of the meeting of January 19, 2010 to the Agency's next meeting on February 16, 2010. Vote was 6-0-1(Staples).

11. Wetlands Agent Report: A brief verbal report was provided by Ms. Bednaz. She stated that the Planning Office now has an additional staff member, hopefully allowing Ms. Bednaz more time to take care of IWWA issues and field work.

Ms. Bednaz also stated that she visited the Meadowlark site and noted that there is a lot of water leaking out of the slope. A full-size drainage structure is being utilized to catch the water.

Ms. Bednaz also noted that Agent Lemay sent an email stating that the Enfield Medical Center site still looks good, as of the time of his recent visit.

Ms. Bednaz announced that a Farming and Wetlands Forum will be held on March 4, 2010 in South Windsor. Further information on this will be included in the Agency members' next meeting packets.

Regarding meeting packets, Ms. Bednaz asked if the paper divider sheets in the packets are necessary. While Chairman Maxellon and Agent Staples prefer that they remain in the packets, the rest of the members did not feel that the dividers are necessary; for now, they will be removed.

Chairman Maxellon asked when the IWWA will have the opportunity to review the Plan of Conservation and Development, before the public hearing.

Agent Peruta stated that he did not believe that the IWWA will have an opportunity to review the document.

Ms. Bednaz stated that she will try to get further information on this.

12. Old Business: None.

13. New Business

a. **IW - 453.05 - Town of Enfield** - Requesting modification to permit IW-453.04 to install rip-rap in defined locations. Project located within channel easement between Meadowlark Road to Yale Drive. Submitted 01/11/10, received 01/19/10, PPE 02/02/10, **MAD 3/25/10**. Ms. Bednaz explained that Mr. Bord would not be present at this evening's meeting. The Agency did not seem to have any questions at the last meeting.

In response to a question by Ms. Bednaz, Chairman Maxellon stated that he did not feel it necessary to amend the proposed standard conditions of approval regarding the removal of materials.

A motion was made by Agent Peruta and seconded by Agent Camidge to approve IW 453.05 with the standard 17 conditions in addition to the following, numbered 18-27:

18. Permanent seeding of disturbed areas shall be achieved using a #2 seed mix on the channel banks and a #1 seed mix on disturbed lawn areas, as referenced in the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control. Erosion control hay blankets shall be installed over all disturbed areas where seed mix #2 is specified. Blankets shall be placed starting downstream and working up so the blankets overlap faces downstream. Blankets shall be secured using appropriate methods;

19. Channel width is to be revised to 15 feet vs. 20 feet. Additional rip rap is to be installed on the northern side of the channel at the bend near #63 Yale Drive to provide additional bank stabilization;

20. Limits of the 100 year floodplain shall be shown on plans along with appropriate construction sequencing notes;

21. Reference to and use of fertilizers is to be eliminated from the plans;

22. The Town shall notify all abutting property owners of the 10 foot riparian management area (or other acceptable management practice) that is to be left to grow in its natural state and mowed once yearly to aid in buffering this watercourse from abutting residential impacts to the watercourse. The purpose and goal of this area is to provide an additional level of protection to the watercourse and abutting residential properties from subsequent erosion and sedimentation that may occur from time to time when this watercourse periodically floods. Educational materials will be provided to residents as part of this notification as well;

23. All required easements shall be in place prior to commencement of construction activity. If modifications in or within 100 feet of wetlands and watercourses are required as a result of easement negotiations or construction laydown areas, the applicant will need to come back to the Agency for a permit modification;

24. In-stream construction activities shall take place only during low flow conditions (June 1 through September 30) to minimize excessive erosion and sedimentation as a result of excessive runoff and heavily saturated soils;

25. Fences removed during this or previous work to be replaced or re-installed so that they serve their purpose.

26. Trees that are not going to be removed, and are near the area of work that may be damaged by the heavy equipment, shall be armored as recommended in the 2002 CT Guidelines for Soil Erosion Control and Sediment Control (5.1.11).

27. To apply to the area between Broadleaf Lane and Meadowlark Drive to allow work to continue beyond the specified stop date of September 30 (for the Broadleaf to Yale section) and only in low flow periods. Work in this area will cease and the area stabilized prior to a significant rain event. The remainder of the work area will be completed only during times specified in the original conditions of approval.

Reason for approval was that the project will not have an adverse impact on inland wetlands and watercourses. Vote was 6-0-1(Abar).

b. **XIW-10-01- Town of Enfield** - is requesting a permit to replace a drainage pipe within an existing drainage easement to improve the drainage configuration on a portion of Parker Street (Map 37, Lots 4, 5 & 17) within the regulated area. Submitted 01/13/10, received 01/19/10, PPE 02/02/10, **MAD 3/25/10**. Chairman Maxellon read into the record a letter from the applicant withdrawing the application due to a modified design allowing all work to be done outside of the regulated area.

Ms. Bednaz briefly explained that a lot of the erosion both up and down the stream is located on private property. The decision was made to put this on the list of private property issues to possibly be taken care of at a later date, after projects on town owned property are taken care of.

A motion was made by Agent Camidge and seconded by Agent Szczesiul to accept the applicant's request to withdraw this application. Vote was 7-0-0.

14. New Applications to be Received

a. **IW-535 - T.P. Rentals, LLC** - is requesting an amendment to the Town of Enfield Inland Wetlands and Watercourses Map for the property located on the south side of Hazard Avenue, immediately east of 150 Hazard Avenue (Map 74, Lot 118). Submitted 1/19/10, received 02/02/10, PPE 02/16/10, **MAD 4/8/10**. Ms. Bednaz stated that the applicant is not present this evening. She explained that map change requests, like regulation changes, require a public hearing. The applicant wants to make sure that the wetland line is correct and approved prior to any plans being made for development

of the site.

She went on to state that this will be a significant change to the current map delineation.

The applicant has requested a public hearing for the meeting of February 16, 2010. Ms. Bednaz suggested that the regulations should state that no map change public hearings should be held in winter since changes should not be made in the winter, due to the inability to properly determine wetland boundaries.

She stated that she will visit the site this week to try to determine if she can get enough information from a site walk to see if she agrees with the applicant's soil scientist's delineations. She suggested that the public hearing be held at the Agency's March 16, 2010 meeting.

A motion was made by Agent Camidge and seconded by Agent Peruta to accept application IW 535 and, as required by IWWA regulations, schedule a public hearing for the meeting of March 16, 2010.

Ms. Bednaz explained that the soils determine wetland boundaries but that is difficult to determine when the ground is frozen.

The IWWA regulations allow waiting until March to schedule the public hearing.

After discussion, Agent Camidge rescinded her motion and Agent Peruta rescinded his second to the motion. The application was received. A public hearing will be scheduled at a later date.

b. Applications to be received after Town deadline for Agenda: None.

15. Other Business

- a. IWWA Fines Ordinance
- b. IWWA Fee Schedule
- c. IWWA Regulation Revisions: Members tentatively scheduled a special meeting for February 25, 2010 at 7:00 p.m. to discuss items 15a through c.

Agent Albert stated that he would like to see item "b – IWWA Fee Schedule" removed from the agenda. He feels that fees should not be increased at this time.

Agent Camidge stated that she feels that the item should still be discussed. Taxpayers should not have to bear the burden of the cost of applications. Agent Szczesiul agreed, as did Agent Peruta.

A motion was made by Agent Albert and seconded by Agent Staples to remove agenda item 15b "IWWA Fee Schedule" from the agenda. Vote was

2(Albert, Staples)-5-0. Motion failed.

Ms. Bednaz noted that the fee schedule is embedded in the regulations. This item could be removed from the agenda but could still be discussed as part of the regulation revisions.

Chairman Maxellon stated that the item should be left on the agenda until it is discussed by the Agency.

A motion was made by Agent Camidge and seconded by Agent Peruta to table agenda items 15a, b, & c to the meeting of February 16, 2010. Vote was 6-1(Albert)-0.

d. Next regular meeting is Tuesday, February 16, 2010 at 7:30PM in the Enfield Room.

16. Adjourn: A motion was made by Agent Szczesiul and seconded by Agent Camidge to adjourn the meeting at 8:15 p.m. Vote was 7-0-0.

Respectfully Submitted,

Jo-Marie Nelson, Secretary

Inland Wetlands and Watercourses Meeting
INLAND WETLANDS AND WATERCOURSES AGENCY
MINUTES OF A REGULAR MEETING
TUESDAY, March 16, 2010

A Regular Meeting of the Enfield Inland Wetlands and Watercourses Agency was held on Tuesday, March 16, 2010 in the Council Chambers, Enfield Town Hall, 820 Enfield Street, Enfield, Connecticut.

MEMBERS PRESENT: Douglas Maxellon, Chairman
Karen Camidge
Maryann Abar, Alternate
Joseph Albert
Robert Lemay
Jo-Marie Nelson
Brian Peruta
Robie Staples
Patrick Szczesiul, Alternate

ABSENT: Katie Bednaz, Wetlands Agent

ALSO PRESENT: Jose Giner, Town Planner
Susan Berube, Recording Secretary

REGULAR MEETING

1. Call to Order: The meeting was called to order by Chairman Douglas Maxellon at 7:00 p.m.
2. Roll Call: Present were: Chairman Maxellon and Agents Abar, Albert, Camidge, Lemay, Nelson, Peruta, Staples, and Szczesiul. Also present were Jose Giner, Town Planner and Susan Berube, Recording Secretary.
3. Pledge of Allegiance: The Pledge of Allegiance was recited.
4. Executive Session
(Matters regarding specific employees, pending litigation, acquisition of real estate and / or matters exempt from disclosure requirements): None.
5. Public Hearing
 - a. **IW-534- Enfield Properties** - is requesting a permit to construct two office buildings and five residential apartment buildings 153 South Road and adjacent lots (Map 55, Lots 80, 93 & 99), within the regulated area. Submitted 12/15/09, received 12/15/09, PPE 12/29/09, MPHCD 2/23/10, **EMPHCD 3/16/10**. Agent Staples recused himself from discussion of this application and left the room.

Dave Ziaks, P.E. and Frank Troiano represented the applicant.

Mr. Ziaks stated that he reviewed the proposed conditions of approval with the owner, who has no issue with what is proposed.

Mr. Giner reviewed the email from Mr. Cabibbo dated March 10, 2010. All issues have been addressed.

With regards to the invasive species and requirement of mowing every 2 years, Mr. Ziaks explained that he spoke with Mr. Logan regarding this and Condition #29 addressed these issues. The applicant will work with staff on the details.

Agent Nelson stated that she feels that proposed condition #24 is contradictory. It mentions both bi-weekly and weekly inspections and should be corrected to bi-weekly. She added that she will send a memo to Ms. Bednaz on this.

Agent Nelson also requested a copy of the memo referred to in condition #29 from the IWWA to PZC.

Mr. Giner stated that he would provide a copy to Agency members.

Agent Camidge noted that the permit number is incorrect in several places and need to be corrected to reflect IW #534.

Also, condition #21 may need a correction of a name. Should Ronal end in a "d"?

Agent Camidge also asked about the proposed drainage easement. Is it in favor of the town or the applicant and who is responsible for cleaning it?

Mr. Ziaks responded that the easement is for the drain that will be installed on the property next door, as previously agreed. The easement will allow the Enfield Properties owner to clean the drain. He will ask Ms. Bednaz to clarify this in the condition.

Agent Camidge asked about the snow stockpile signage change.

Mr. Ziaks explained that he spoke with Ms. Bednaz on this matter. He feels that the applicant's plan is preferable; signs will show where the snow **is** to be stockpiled, instead of where it is **not** to be put.

With regards to a question on actual square footage of wetland disturbance, Mr. Ziaks stated that the exact number will be submitted when his report goes to the D.E.P.

With regards to rain gardens, in Ms. Bednaz's memo dated March 11, 2010, Mr. Ziaks stated that instead of rain gardens, the applicant has chosen to use large water quality basins which will accomplish the same goal.

Also, Mr. Ziaks stated that item number 8 of the memo is addressed in proposed condition #28.

Agent Camidge thanked the applicant for speaking with the nearby property owners and addressing their concerns.

Agent Albert noted that he had not yet opened his email so he was not familiar with the draft conditions of approval and therefore could not comment on them.

Agent Peruta requested that the open issues of Ms. Bednaz's memo be addressed with a new memo issued for the file.

He also noted that he, too, has not seen the proposed conditions of approval yet, but added that he loves the mitigation plans.

Agent Peruta asked for an explanation of the note on LS-1 that states that a fence "may" be installed.

Mr. Ziaks explained that the applicant has added additional buffer plantings to the plans. Until the plants are installed, however, the neighbors are unsure if they want a fence. The area is within the upland review area so the fence was put in the plans just in case it is used. It is addressed in proposed condition #22.

Agent Peruta asked about the note on LS-4 regarding the mitigation plan coming back to the Town for approval. He asked if this should not come back to the IWWA instead.

Mr. Ziaks stated that this is addressed in proposed condition #24.

Agent Peruta asked, also regarding LS-4, about the potential for reduction of mitigation area, but no more than 10%.

Mr. Ziaks explained that there may be something out in the field that would be of more value to keep and work around, such as a tree. The mitigation area could be reshaped to have a better fitting contour. The decision will be made by the applicant's wetland expert and Town staff.

Agent Peruta asked for additional protection, perhaps hay bales, on GR-1. The proximity of the building to the wetlands is very close, only 25 to 30' distance between them.

Mr. Ziaks stated that he will double up on the protection by silt fence with hay bales and this can be worked out between the applicant and staff.

Agent Peruta requested that this be done anywhere where it's close.

Agent Camidge noted that this is addressed in proposed condition #13; would Agent Peruta still want extra protection.

Agent Peruta replied that he would like extra protection anywhere that the buildings or disturbance is close to the wetlands.

Agent Peruta pointed out that the plans showing the wetlands with arrows are in error.

Mr. Ziaks stated that this has already been taken care of.

Agent Peruta stated that with regard to having the applicant's expert being the one doing inspections, he feels it is a conflict of interest and would like a more fool-proof way for inspections to be done. It had been noted in the minutes of the last meeting that it had been recommended that Ms. Bednaz

get out more to make inspections, however, the Town may not have a wetlands agent in the future.

Agent Peruta read proposed condition #25, provided by Agent Camidge. He was in agreement with the proposed condition.

Chairman Maxellon asked if the discrepancy noted in the memo of 3/11/10, item #7, has been addressed.

Mr. Ziaks responded that it has.

Chairman Maxellon asked if item #13 of the same memo is addressed as proposed condition #21.

Mr. Ziaks responded that it is and the applicant will work together with staff to make sure that it comes out the right way.

Mr. Giner noted that the items in Ms. Bednaz's memo of 3/11/10 were all of her concerns.

At this time, the hearing was opened for public comment. No one in the audience came forward to speak for or against this application.

A motion was made at 7:28 p.m. by Agent Camidge to close the public hearing on IW 534. Seconded by Agent Nelson. Vote was 5-0-1(Albert).

b. **IW-535 - T.P. Rentals, LLC** - is requesting an amendment to the Town of Enfield Inland Wetlands and Watercourses Map for the property located on the south side of Hazard Avenue, immediately east of 150 Hazard Avenue (Map 74, Lot 118). Submitted 1/19/10, received 02/02/10, PPE 02/16/10, MAD 4/8/10, **MPHCD 4/6/2010**. The applicant was represented by Edward Lally and Thomas Pietras, soil scientist.

The site is located on the south side of Hazard Avenue, between #150 and #170. It is open land, almost all within the upland review area.

Agent Staples returned to the meeting at this time.

The wetlands include an excavated ditch with wetland soils and an intermittent stream and another wetland area.

Ms. Bednaz had stated to the applicant that she was in agreement with the soil scientist's wetland boundaries.

The boundary survey has been done and the wetlands have been flagged.

Mr. Pietras stated that he delineated the wetlands on 12/31/08. It is a fairly level site, an old agricultural field. It includes red cedar, autumn olive and scrub brush.

The ditch used for farming drains to Hazard Avenue.

Mr. Giner noted that the applicant submitted the receipts of certified mail notifications to abutters.

He added that Ms. Bednaz indicated to him that she had no issues on this application and if the Agency members agree, the hearing can be closed and voted on.

Agent Camidge asked if there is an existing map showing the previous delineation.

Mr. Lally stated that the only mapping available was a town wide project done many years ago and was not site specific.

Mr. Pietras added that it was the Hartford County Soil Survey map from the 1950's. It was a low intensity delineation.

Agent Peruta asked if this was an agricultural area before.

Mr. Pietras replied that the wetlands are more or less ditches that were cut in. The agricultural use was abandoned approximately 30 or more years ago.

At this time, the hearing was opened for public comment. No one in the audience came forward to speak for or against the application.

A motion was made by Agent Nelson at 7:37 p.m. to close the public hearing on IW 535. Seconded by Agent Lemay. Vote was 7-0-0.

6. Call to Order of Regular Meeting: The regular meeting was called to order by Chairman Maxellon at 7:38 p.m.

Present were: Chairman Maxellon and Agents Abar, Albert, Camidge, Lemay, Nelson, Peruta, Staples, and Szczesiul. Also present were Jose Giner, Town Planner and Susan Berube, Recording Secretary.

7. Public Participation - Issues of concern not on the agenda: None.

8. Correspondence

- a. Flame-Weeding for Invasive Shrub Control Workshop
- b. CAWS Vernal Pool Monitoring Program Handouts
- c. ACOE Section 404(f) Farming Exemption Criteria Clarification Handout
- d. US Army Corps of Engineers - Presentation to Municipal Inland Wetland Staff Members, February 26, 2010
- e. ACOE Category I Eligibility Determination Form
- f. Date change of Public Information Meeting for POCD to March 30, 2010. Mr. Giner provided Agency members with copies of the summary of POCD. He noted that the entire plan is over 300 pages. The first 58 pages are the "meat" of the plan. Agency members, as well as the public can make comments and ask questions at the meeting. The Plan is valid for 10 years, although it can be updated as needed throughout the 10 year period.

9. Commissioner's Correspondence

a. Site Visit Updates: Agent Lemay reported that the Enfield Medical Partners building project is still moving along. Ms. Bednaz visited the site a few weeks ago and found only minor issues.

Agent Camidge noted that the silt fence is still down at Petsmart. The hay bales are o.k. but the gaps in the fencing have not been fixed as promised.

She also reported that the proposed logo for the shirts for Agency members have been emailed to all members. The logo was approved by general consensus of the members. Shirts can be ordered by members.

Agent Albert reported that he recently visited the Butler property. The hay bales are still in place. He noted, however, that the cul de sac at the end of Sharp Street is eroding. People are still riding dirt bikes in the area, causing escarpment soils to erode. A guard rail or fence similar to that found on Town Farm Road needs to be installed.

Mr. Giner took note of this and will have Ms. Bednaz provide an update on this at the Agency's next meeting. Mr. Hawkes, present in the audience, also took note.

Chairman Maxellon stated that the appointments for badge photos are to be scheduled through Ms. Bednaz.

Mr. Giner added that a few new members of the PZC also need badges. He is of the belief that the equipment used for the badges is not owned by the Town and needs to be borrowed.

After brief discussion of who actually owns the equipment and the length of time this process is taking, Mr. Giner stated that he would ask Ms. Bednaz to provide an update to the Agency at their next meeting. Agent Albert requested that the appointments be made at night or on a Saturday.

Agent Peruta reported that the Simon Road project will not be starting any time soon, if at all.

He also asked about a list that had previously been provided to the Agency members. The list consisted of erosion problem spots in town.

He asked if the list is progressing at all and where on the list is the area between Shannon and Kelly Streets, which is eroding to the Scantic River. He requested an update on this and the list as a whole.

Agent Staples asked for an update on the Nitch property.

Chairman Maxellon stated that Ms. Bednaz visited the site recently. She also will be following up on the courthouse property by notifying the D.E.P.

10. Approval of Minutes -January 19, 2010, February 2, 2010 & March 2, 2010: A motion was made by Agent Peruta and seconded by Agent Camidge to approve the minutes of the meeting of 01/19/10 as amended. Vote was 6-0-1(Staples).

A motion was made by Agent Nelson and seconded by Agent Albert to table the vote on the minutes of the meeting of 02/02/10. Vote was 7-0-0.

A motion was made by Agent Camidge and seconded by Agent Nelson to approve the minutes of the meeting of 03/02/10 with the following amendment: page 3, 6th paragraph, 2nd sentence, before "It", add: "At Chairman Maxellon's direction,". Vote was 5-0-2(Camidge, Peruta).

11. Wetlands Agent Report: None.

12. Old Business

a. **IW-534- Enfield Properties** - is requesting a permit to construct two office buildings and five residential apartment buildings 153 South Road and adjacent lots (Map 55, Lots 80, 93 & 99), within the regulated area. Submitted 12/15/09, received 12/15/09, PPE 12/29/09, MPHCD 2/23/10, **EMPHCD 3/16/10**. Chairman Maxellon expressed his concern of approving this application without cleaning up "loose ends".

Agents Albert and Peruta have not had the opportunity to read the proposed conditions of approval yet. He would prefer to wait until the Agency's next meeting to vote on this application.

Mr. Ziaks and Mr. Troiano stated that they understand and will apply to the PZC to begin that approval process in the meantime.

b. **IW-535 - T.P. Rentals, LLC** - is requesting an amendment to the Town of Enfield Inland Wetlands and Watercourses Map for the property located on the south side of Hazard Avenue, immediately east of 150 Hazard Avenue (Map 74, Lot 118). Submitted 1/19/10, received 02/02/10, PPE 02/16/10, MAD 4/8/10, **MPHCD 4/6/2010**. A motion was made by Agent Camidge and seconded by Agent Nelson to approve IW 535 with the conditions numbered 1 through 16 as noted in Ms. Bednaz's draft memo dated 03/17/10. Vote was 7-0-0.

13. New Business

a. **IW-536 - Richard Lanagan** - is requesting a permit to clear trees and install a shed on 201 State Street (Map 35, Lot 248) within the regulated area. Clearing activities have already been conducted. Submitted 2/22/10, received 3/02/10, PPE 3/16/10, **MAD 4/6/10**. The applicant was not present.

Mr. Giner distributed the proposed plant list provided by the homeowner.

Signage has been erected along the conservation easement line.

Agent Nelson expressed her confusion of the two proposed special conditions of approval.

Mr. Giner noted that condition #15 references the plant list and he feels that number 16 is unnecessary because the original permit is now amended by IW 536.

A motion was made by Agent Nelson and seconded by Agent Staples to approve IW 536 with the standard 14 conditions **and #15 the conservation easement shall be re-planted with the plants on the plant list by Debbie Lanagan dated 03/10/10.** Vote was 5-0-2 (Camidge and Peruta).

14. New Applications to be Received

a. **XIW-01-02 - Town of Enfield Public Works** - is requesting a permit to reconstruct and enlarge the South Maple Street Bridge over the Scantic River (Map 84, Lots 6, 7, 12, 14 and 21). Submitted March 3, 2010, received 3/16/10, PPE 3/30/10, **MAD 5/20/10.** Mr. Piya Hawkes, Enfield Public Works Director and Jeff Scala briefly explained the proposed project.

Mr. Hawkes stated that the applicant is proposing to replace the South Maple Street bridge that was built in 1925 and has alternating 1-way traffic. Last year the D.O.T. reduced the load rating from 10 to 8 tons.

Federal Funds have been earmarked for this project.

Wetlands have been delineated by a certified soil scientist.

The old bridge has a 62' span; the new one will be 84' and will meet the Army Corps of Engineers' requirements as well as D.O.T. and flood management requirements.

Wetland impacts will be temporary, taking place during the construction of the project.

Temporary coffer dams will be built to construct the new bridge footings.

De-watering will be done.

Standard Best Management Practices will be used.

Silt fence will be utilized and grassed slopes will be installed.

Some drainage structures on South Maple Street will be replaced; all will have deep sumps.

Outlets located at the wetlands will have pre-shaped scour holes.

Nine trees will be replaced.

There will be some road widening and sidewalks installed.

The project will be of very short duration and as much as possible will be pre-formed, to speed installation and lessen impact.

There will be a temporary impact to 533 square feet of wetlands and 28,954 square feet impact in the upland review area, including the road and bridge. Total disturbance, including the bridge and road is approximately $\frac{3}{4}$ acre.

The applicant also proposes to build a new paved parking area for the D.E.P. at Powder Hollow Park.

Sand bag type dykes are expected to be used to hold back the river but the contractor has the option to use other methods.

Mr. Giner noted that the Agency will need to determine whether or not a public hearing should be held on this application.

Chairman Maxellon noted that the construction staging and concrete washout areas need to be shown on the plans.

Mr. Scala stated that there usually isn't a washout area allowed on D.O.T. jobs. The staging area will be the paved parking lot.

Chairman Maxellon asked the size of the intermediary rip rap.

Mr. Scala stated that it is 18". The applicant plans to cover the rip rap with natural bed material.

The project is slated to start in early July, 2010. This will allow time to isolate the work zone from the river and be out of the water by the end of September, 2010 and have the job completed before the new year.

Chairman Maxellon asked if the erosion taking place on the south side will be addressed in the plans.

Mr. Scala stated that the area is located outside the charge of the project and is on private property.

He added that new catch basins will help in catching the sediment caused by the erosion.

Agent Peruta asked when final approval is required.

Mr. Scala stated that approval needs to be obtained from the IWWA, Army Corps of Engineers and all others by June at the latest. To have IWWA approval by the second meeting in May would be very helpful.

Chairman Maxellon asked Mr. Giner to make sure that the full set of plans for this project are put on the FTP site.

A motion was made by Agent Camidge and seconded by Agent Nelson to hold a public hearing on this application due to potential for significant public interest. Vote was 7-0-0.

b. Applications to be received after Town deadline for Agenda: **None.**

15. Other Business

a. IWWA Fines Ordinance

b. IWWA Fee Schedule

c. IWWA Regulation Revisions: It was the consensus of the Agency members to tentatively schedule a special meeting to continue the review of the IWWA regulations on Wednesday, March 24, 2010 at 7:00 p.m.

A motion was made by Agent Nelson and seconded by Agent Camidge to table discussion on Agenda item 15a, b, & C. Vote was 7-0-0.

d. Next regular meeting is Tuesday, April 6, 2010 at 7:00PM in the Council Chambers.

16. Adjourn: A motion was made by Agent Camidge and seconded by Agent Lemay to adjourn the meeting at 8:36 p.m. Vote was 7-0-0.

Respectfully Submitted,

Jo-Marie Nelson, Secretary

WETLANDS AGENT REPORT

Memo

To: Enfield Inland Wetlands and Watercourses Agency
From: Katie Bednaz, Assistant Town Planner/Wetlands Agent
Date: March 31, 2010
Re: Wetlands Agent Report

Site Visits

33 Betty Road – Inspected water levels and observed that they were lower than observed. It appeared that the beaver dam had been altered as it had in the past.

Enfield Medical Partners – Visited a couple of times. Original site visit observed a breach in the erosion controls as well as a sediment build up along the controls on the Middle Road side. Subsequent site visit observed that the breach had been repaired and a portion of the sediment build up had been removed. Additional work still needs to be done to restore the capacity to the erosion controls.

Five Guys Burgers & Fries – Silt fence just behind building on Asnuntuck College side was in need of repair. During a subsequent site visit it was observed that all controls were repaired and functioning as designed.

Petsmart – Silt fence remains down, but hay bales are maintaining the controls in that area. Contractor stated that silt fence would be repaired when the remaining site work was to be completed and crews mobilized.

State of CT Judicial Branch at 111 Phoenix Ave – Inspected site for potential IWWR violation per Agent concern. It appears that the sand that is located adjacent to the stormwater swale is due to plowing activities. While pushing the snow and associated sand into or adjacent to the swale is not the preferred practice, it does not appear to be a violation. It is recommended that an informational letter be sent to the responsible parties detailing the concerns so that they are aware for next winters plowing season.

169 Cottage Road – Building construction is active and construction materials are being stored outside of building. No materials appeared to be mobile at the time of inspection. Site appeared to be in stable condition.

54 West Shore Drive – The majority of the house appears to be constructed and exposed soil are stabilized.

895 Enfield Street – Observed dewatering activities at site as a result of excavation activities. Work is located outside of the regulated area. Water was being discharged to catch basin that discharges to Freshwater Brook prior to being filtered. Requested that contractor filter discharge water prior to it discharging to the catch basin. No issues observed since inspection.

Meadowlark Road Channel – Inspected recent work area and observed one section of the silt fence to be slumping. Relayed message to the Engineering Department who informed contractor. Subsequent inspection observed silt fence was repaired. No soil migration was observed during either site inspection.

7 Campsite St – Visited residence in response to call from homeowner who is concerned about the escarpment slope adjacent to his house “slipping”. Recommended actions to aid in preserving and enforcing slope stability.

157 South Road – Met with owners consultants, soil scientist and engineer, to review wetland delineation boundaries as established by the owners soil scientist for accuracy. The site is highly disturbed and the owners consultants wanted to make sure the Town was comfortable with the wetland boundaries established before embarking on a site design.

South Road Town Property – Map 55, lot 58. Reviewed site and approximated boundary of wetlands to aid in property value assessment.

Agent Approval

AAA-078 – Carl Nelson Construction is requesting a permit to expand the building footprint 4 feet to the west within the regulated area at 215 State Street (Map 35, lot 25). Approved with conditions.

Other Topics

Flame Weeding Workshop – Attended a work shop on using a propane flame to control invasive species. Please see attached handout.

FLAME-WEEDING FOR INVASIVE SHRUB CONTROL

TUESDAY, MARCH 30, 2010
TOLLAND COUNTY AGRICULTURAL CENTER

Hosted by
North Central Conservation District,
USDA Natural Resources Conservation Service Present
Connecticut Department of Environmental Protection (CAES)
The Connecticut Agricultural Experiment Station

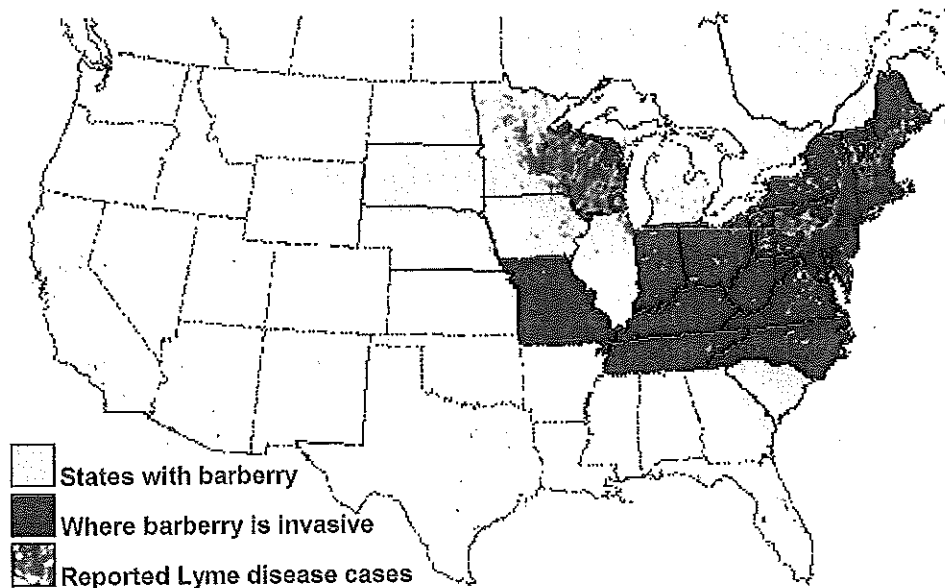
These results based on research partially sponsored by Aquarion Water Company, Connecticut Chapter – The Nature Conservancy, Propane Education and Research Council, South Central Connecticut Regional Water Authority, and Weed-It-Now Program – The Nature Conservancy with additional assistance from Connecticut Department of Environmental Protection-Division of Forestry, Towns of Mansfield and Greenwich, Norcross Wildlife Foundation, New England Propane Gas Association of New England, Providence Water, and Lord's Creek Farm.

Contacts

Jeff Ward – CAES (203) 974-8495 or jeffrey.ward@po.state.ct.us

Scott Williams – CAES (203) 974-8609 or scott.williams@ct.gov

Tom Worthley – Uconn (860) 345-4511 or thomas.worthley@uconn.edu



Lyme disease incidence is high in many states where barberry is reported invasive: light blue – states and provinces with barberry (<http://plants.usda.gov>); red – states where barberry reported invasive (<http://www.nps.gov>); blue dots – reported cases of Lyme disease in 2006 (<http://www.cdc.gov>).

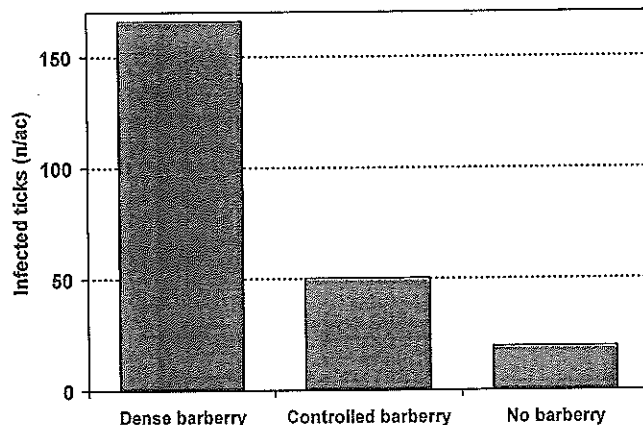
Japanese Barberry – The problem

Health

- Increased nitrification (may affect drinking water quality)
- Decreased litter layer (may affect drinking water quality)
- Increased tick populations (may increase exposure to Lyme disease)

Habitat

- Lower tree regeneration
- Lower herbaceous plant cover
- Increased earthworm densities



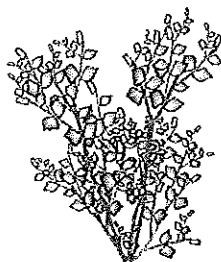
Barberry and Ticks

Controlling Japanese barberry reduces the number of blacklegged (deer) ticks infected with *Borrelia burgdorferi*, the causal agent of Lyme disease. Thus, controlling barberry may benefit human health by reducing a major vector of the disease agents that cause Lyme disease, human granulocytic anaplasmosis, and human babesiosis.

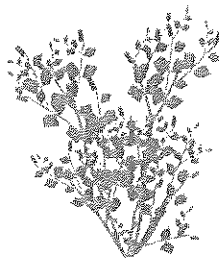
Barberry Control Overview

Our work has found that a two-step process can control barberry.

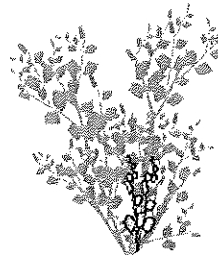
2-Step Procedure



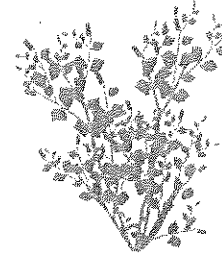
**Initial
healthy
plant**



**Step 1 – Kill
aboveground
tissues with
prescribed
fire, torch, or
mechanically**



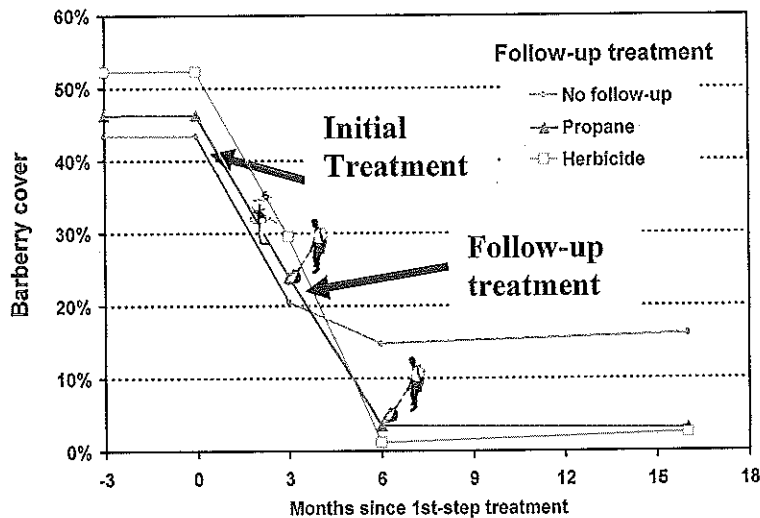
**Root reserves
used to grow
new shoots,
lowers root
reserves**



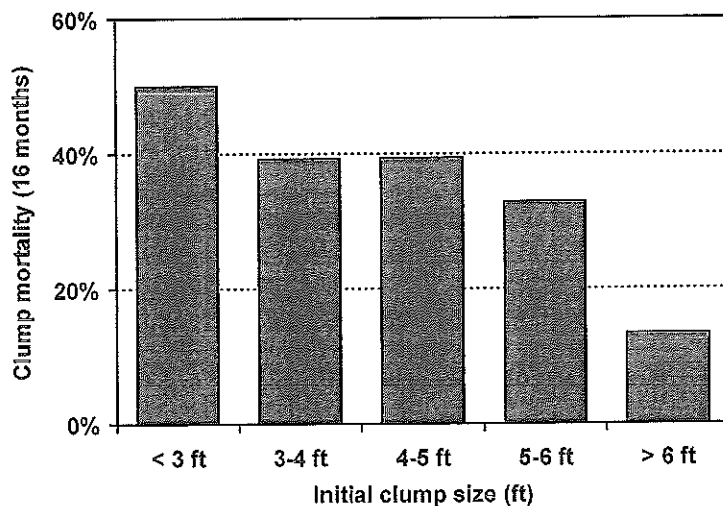
**Step 2 – Kill
much smaller
plant with
heat or
herbicides**

Initial Treatments

- Initial treatments (prescribed burning, propane torch, mechanical mowing with a drum chopper, or mechanical mowing with a brush saw) reduces the size of established barberry clumps and causes some mortality of clumps less than 3-ft tall.
- All initial treatments were equally effective for reducing barberry cover. Brush saw treatment was half the cost of using a drum chopper. Nevertheless, we recommend using medium or heavy (bulldozer) equipment to cut or flatten corridors in barberry that is waist high or taller to increase worker efficiency.

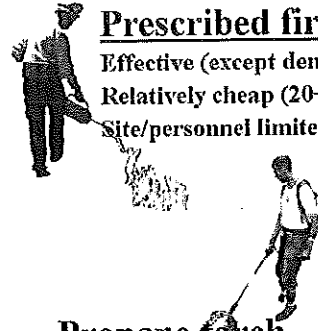


The graph above shows barberry cover in relationship to timing of initial (April) and follow-up (July) treatments. Initial treatment can be before or after leafout. Excellent control of barberry can be achieved using either propane torches or herbicides.



The graph above shows that without follow-up treatments, most barberry clumps larger than 3-ft were still alive 16-months after initial treatment. Therefore, successful control of barberry infestations requires a follow-up treatment.

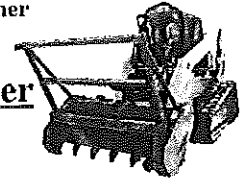
Prescribed fire
Effective (except dense clumps)
Relatively cheap (20+ acres)
Site/personnel limited



Propane torch
Effective (if ≤ 3 ft tall)
Moderate cost
Limited by weather

Drum chopper

Needs follow-up
Expensive
Needed if barberry taller than 3 ft



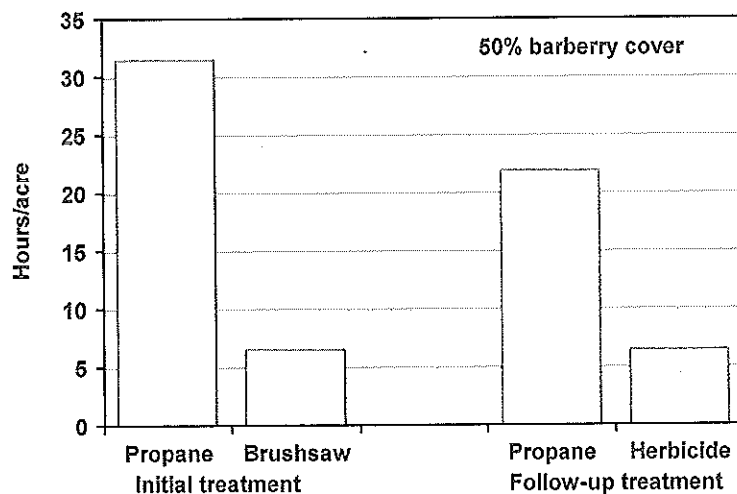
Brush saw

Effective (if ≤ 3 ft tall)
Moderate cost
Must get all stems/clumps



Follow-up Treatments

- The second, follow-up steps (directed heating with a propane torch, application of herbicide (triclopyr, glyphosate) treats the sprouts that develop after initial treatments.
- As shown in the graph below, labor costs vary among treatment alternatives. Propane torches provide an 'organic' alternative where in parks, nature preserves, or forests where herbicide use is restricted. Cost of propane torches is similar to herbicides where a volunteer labor pool is available. Larger barberry clumps (> 3 feet) may require two or three follow-up propane treatments. Where herbicide use is permitted, initial treatment with propane torches or brushsaws reduces the amount of herbicide that would be needed.



Individual species and Directed heating with propane torches

The following are from our research and research by Peter Smallidge at Cornell University (pjs23@cornell.edu). Species with * are based on field observations, not scientific study.

- Japanese barberry (*Berberis thunbergii*) – effective in CT
- Japanese stiltgrass (*Microstegium vimineum*) – effective in CT
- Burningbush (*Euonymus alatus*) – effective after 2-yrs in CT
- Multiflora rose (*Rosa multiflora*) – effective in CT in shade*, not in NY in sun
- Bush honeysuckle (*Lonicera* spp.) – effective in NY, not in CT*
- Autumn olive (*Elaeagnus umbellata*) – effective control in NY
- Tree of heaven (*Ailanthus altissima*) – in CT, effective in shade but not sun*
- American beech (*Fagus grandifolia*) – moderately effective after 2-yrs in NY
- Striped maple (*Acer pensylvanicum*) – marginally effective in NY
- Buckthorn (*Rhamnus cathartica*) – poorly effective in NY
- Oriental Bittersweet (*Celastrus orbiculatus*) – not effective in CT*
- Swallow-wort (*Cynanchum* spp.) – not effective in CT*
- Japanese knotweed – probably not effective, but merits examination

NEW BUSINESS

IW-534 – Enfield Properties

Memo

To: Enfield Inland Wetlands and Watercourses Agency
From: Katie Bednaz, Assistant Town Planner/Wetlands Agent
CC:
Date: March 29, 2010
Re: Agent Review for IW# 534 – South Road (3)

Previously I had provided my review comments and observations regarding the Inland Wetland and Watercourses Application IW-534 for the Proposed Elderly Housing and Commercial Development. The full set of plans for the project were reviewed entitled "Proposed Elderly Housing and Commercial Development, South Road, Enfield, CT, Inland Wetlands Permit Application", sheets: MA-1, LA-1, LA-2, LS-1 thru LS-4, GR-1, GR-2, UT-1, UT-2, PH-1, SD-1 thru SD-5, NT-1 and 1, dated 12/11/09, revised to 03/15/10.

All comments as presented in my 2/24/10 and 3/11/10 Review Memo's have either been addressed by the applicant or included as conditions of approval on the draft approval letter.

INLAND WETLANDS AND WATERCOURSES AGENCY

Certified Mail: XXXXXXXXXXXXXXXX

WETLANDS PERMIT #IW 534

April 7, 2010

Enfield Properties
777 Enfield Street
Enfield, CT 06082

Enfield Properties,

At a regular meeting held April 6, 2010, the Enfield Inland Wetlands and Watercourses Agency took the following action:

IW-534– Enfield Properties – is requesting a permit to construct two office buildings and five residential apartment buildings 153 South Road and adjacent lots (Map 55, Lots 80, 93 & 99), within the regulated area. **Approved with conditions.**

The permit is issued subject to the following conditions:

STANDARD CONDITIONS

Prior to the start of construction:

1. The Inland Wetlands and Watercourses Agency or its designated Agent must be notified in writing within two business days of the commencement of permitted activities, and upon completion of said activities; a "business day" is a day when the Town Hall is open for business.
2. Prior to the start of construction or, if applicable, the issuance of a building permit the half-sized (approximately 11" x 17") plans as approved by the Agency and the Planning and Zoning Commission shall be submitted to the Inland Wetlands Agent;
3. If the project requires that materials be removed from the site, the Inland Wetlands and Watercourses Agency or its designated Agent must be notified in writing within two business days of the commencement of permitted activities of where the removed materials will be deposited.
4. The permittee/contractor shall schedule a pre-construction meeting with the Inland Wetlands Agent to be held no sooner than two weeks before the regulated activities are to begin. The permittee shall, at that time, review with the Inland Wetlands Agent, the procedures to be taken to protect the regulated areas prior to and during construction;

General Conditions of Approval:

5. This permit shall be valid for 5 years from the date of approval unless otherwise revoked or specifically extended;

6. All work and all regulated activities conducted pursuant to this permit shall be consistent with these terms and conditions hereof. Any structures, excavation, fill, obstruction, encroachments or regulated activities not specifically identified and authorized herein shall constitute a violation of this permit and may result in its modification, suspension, or revocation. Upon initiation of the activities authorized herein, the permittee thereby accepts and agrees to comply with the terms and conditions hereof;
7. This permit is not transferable without the written consent of the Enfield Inland Wetlands and Watercourses Agency **or its designated Agent**;
8. In issuing this permit, the Agency has relied on information provided by the applicant and, if such information subsequently proves to be false, deceptive, incomplete and/or inaccurate this permit shall be modified, suspended or revoked;
9. This permit shall be made a part of all construction contracts and sub-contracts pertaining to the proposed regulated activities and shall supersede all other contract requirements;
10. The permittee shall permit the Agency, its authorized representative(s) or designee(s) to make periodic inspections at any time deemed necessary in order to assure that the activity being performed under authority of this permit is in accordance with the terms and conditions prescribed herein;
11. No equipment or material including without limitation, fill, construction materials, or debris, shall be deposited, placed, or stored in any wetland or watercourse on or off site unless specifically authorized by this permit;
12. This permit is subject to and does not derogate any present or future property rights or other rights or powers of the Town of Enfield, and conveys no property rights or in real estate of material nor any exclusive privileges, and is further subject to any and all public and private rights and to any activity affected hereby;
13. Prior to the start of construction, adequate erosion and sedimentation control measures shall be implemented, and shall be maintained throughout the entire construction phase and shall meet or exceed the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as revised, until the site has become stabilized with permanent vegetative cover. The construction site shall be left in a stable condition at the close of each day. An adequate stockpile of erosion control materials shall be on site at all times for emergency or routine replacement and shall include materials to repair silt fences, haybales, mulch, stone-riprap filter dikes or any other devices planned for use during construction. Additional erosion/stormwater control measures are to be installed as directed by the Inland Wetland Agency, its authorized representative(s) or designee(s) if field conditions necessitate. The permittee shall immediately inform the Department of Planning and Community Development of any problems involving wetlands or watercourses which have developed in the course of, or which are caused by, the authorized work;
14. All temporary barriers, including erosion and sedimentation controls are to be removed when the site is stabilized in suitable weather conditions. The site is considered stabilized when there is equal to or greater than 70% vegetative cover;

15. With the exception of the addition of the items stated in these conditions, this application is approved in accordance with the plans entitled:

"Proposed Elderly Housing and Commercial Development, South Road, Enfield, CT, Inland Wetlands Permit Application", prepared by F.A. Hesketh & Associates, Inc. of East Granby, CT, dated February 10, 2010, revised to March 15, 2010.

- Title Sheet
- MA-1 Master Plan, dated 12/11/09, revised to 03/08/10
- LA-1 and LA-2, Layout Plan, dated 12/11/09, revised to 03/08/10
- LS-1 thru LS-4, Landscape Plan, dated 12/11/09, revised LS-1 and LS-2 to 3/15/10 and LS-3 and LS-4 to 03/08/10
- GR-1 and GR-2, Grading and Erosion & Sedimentation Control Plan, dated 12/11/09, revised to 03/08/10, GR-1 revised to 03/15/10
- UT-1 and UT-2, Utility Plan, dated 12/11/09, revised to 03/08/10
- PH-1, Phasing Plan, dated 12/11/09, revised to 03/08/10
- PH-2, Phase 1 Plan, dated 12/11/09, revised to 03/08/10
- SD-1 thru SD-5, Site Details, dated 12/11/09, revised to 03/08/10
- NT-1, Notes, dated 12/11/09, revised to 03/08/10
- 1, Property Survey, dated 12/11/09, revised to 03/15/10

Any changes that would potentially cause greater impact to wetlands or watercourses, such as enlargement of the area of disturbance or reorientation of building footprints, from the plans shall require the permittee to come before the Enfield Inland Wetlands and Watercourses Agency for a Determination of Permit Need (Jurisdictional Ruling) or Permit Modification.

16. A copy of the As-Built plan with the topography certified to T2 accuracy shall be submitted to the Agency or its designated Agent upon completion of the project to ensure compliance with this approval. In addition an electronic copy of the As-Built plan shall be submitted in accordance with the "Town of Enfield, CT Geographic Information Systems Electronic Submittals Ordinance".
17. The Inland Wetlands and Watercourses Permit number shall be located on all future plans to any Town or State Agency.

Special Conditions of Approval:

18. The yard drain proposed to be located on Ronal & Rebecca Calabrese's property, Map 55, Lot 94 may only be installed within the existing lawn area and not within the tree line. It is also recommended that a drainage easement be provided for this structure so that it may be properly maintained.
19. Stated on sheet LS-1 of the project plans "... 6 foot high, white panel fence may be installed along property line as determined in field with abutting property owners and Project Landscape Architect. Final location to be determined in field and adjusted to preserve existing trees." The specifications of the fence shall first be submitted to the IWWA or their designated Agent for review and approval prior to installation. Currently, a portion of the fence is shown to be located within wetlands. The installation of the fence shall accommodate for wildlife migration and minimize impacts to wetlands. Erosion controls shall be installed to prohibit any disturbed soil from migrating into the resource areas.
20. A performance surety bond in the appropriate form shall be posted for 125% of the cost estimated by the applicant and confirmed by the IWWA Agent for the wetland mitigation activities (creation, enhancement, replacement) as proposed in the approved plans. The bond may be released by the IWWA Agent after the report is received following the third complete growing season for each mitigation area,

as approved and completed to the Agent's satisfaction. The bond may be held for a longer period of time until it is determined that the mitigation areas are performing as designed. Release of the bond by any other agency, board or commission does not remove the permittee's obligations with regard to this permit condition.

21. In accordance with Section 18.2 of the Inland Wetlands and Watercourses Regulations most recently revised in February 2005 an inspector shall be hired to conduct bi-weekly inspections for the Town of all erosion and sediment control measures and report their findings to the IWWA bi-weekly. Inspections shall be conducted bi-weekly during active construction and every three weeks when construction is inactive and soils remain exposed. Inspections shall be completed after each rain event of greater than 0.5" as determined by NOAA nearest rainfall gauge. The content and presentation of the weekly reports shall be reviewed and approved by the IWWA Agent prior to the start of any construction activities. The inspector shall be contracted with prior to the start of work.
22. A wetland scientist, hired by the applicant, shall be on-site daily during the construction of the wetland mitigation areas. A weekly report that details progress, issues, solutions and determinations shall be submitted to the IWWA for tracking of the mitigation area construction progress.
23. A Conservation Restriction in favor of Enfield Properties, as shown on the approved plans shall be placed on the applicable properties prior to the issuance of the Certificate of Occupancies for each subject property. A copy of the draft or final deed for each parcel must be submitted to the Inland Wetlands and Watercourse Agent for review and approval. Conservation restriction markers shall be installed in accordance with Town requirements, by a licensed surveyor, at the applicant's expense. Easement markers will be provided by the Planning Department. Where no trees are present greater than 6" dbh, easement markers shall be placed on 4" x 4" wooden posts to demarcate the easement boundary. Markers shall be placed at a minimum of 40 feet apart.
24. All wetland creation, restoration and enhancement activities shall be completed as part of Phase 1 of the project unless otherwise approved in writing by the IWWA or their designated Agent.
25. Mitigation for the projects impacts will be completed in accordance with the plans detailed in item 15 of this approval as well as specified in Rema Ecological Services, LLC February 16, 2010 Wetlands Assessment Report and Rema Ecological Services, LLC March 16, 2010 Mitigation Monitoring, Post-Construction Vegetation Management, and Release of Biological Control for Purple Loosestrife" letter report, both included in the project file.
26. Mitigation has been proposed that includes rotational mowing of the open field area to the south of the commercial development so that it is maintained. The schedule for this mowing is included in REMA Ecological Services, LLC March 16, 2010 letter report regarding "Mitigation Monitoring, Post-Construction Vegetation Management and Release of Biological Control for Purple Loosestrife". This mitigation is designed to continue for the life of the development, which in most cases will continue beyond the validity of this approval. Therefore, it is recommended that this mitigation also be included on the site plan approval by the Enfield Planning and Zoning Commission (PZC). A memo requesting such has been submitted to the PZC from the IWWA.

NOTE: This permit does not relieve the applicant from his responsibility to apply for any other permits required by local, state or federal agencies.

This authorization constitutes the permit required by Section 22a-39 of the Connecticut General Statutes. The decision legal notice will be published in the Journal Inquirer on **XXXXXXXXXX, 2010**. Please note that the appeal period (15 days) begins as of the date of publication in accordance with Sec. 22a-43 of the State Statutes.

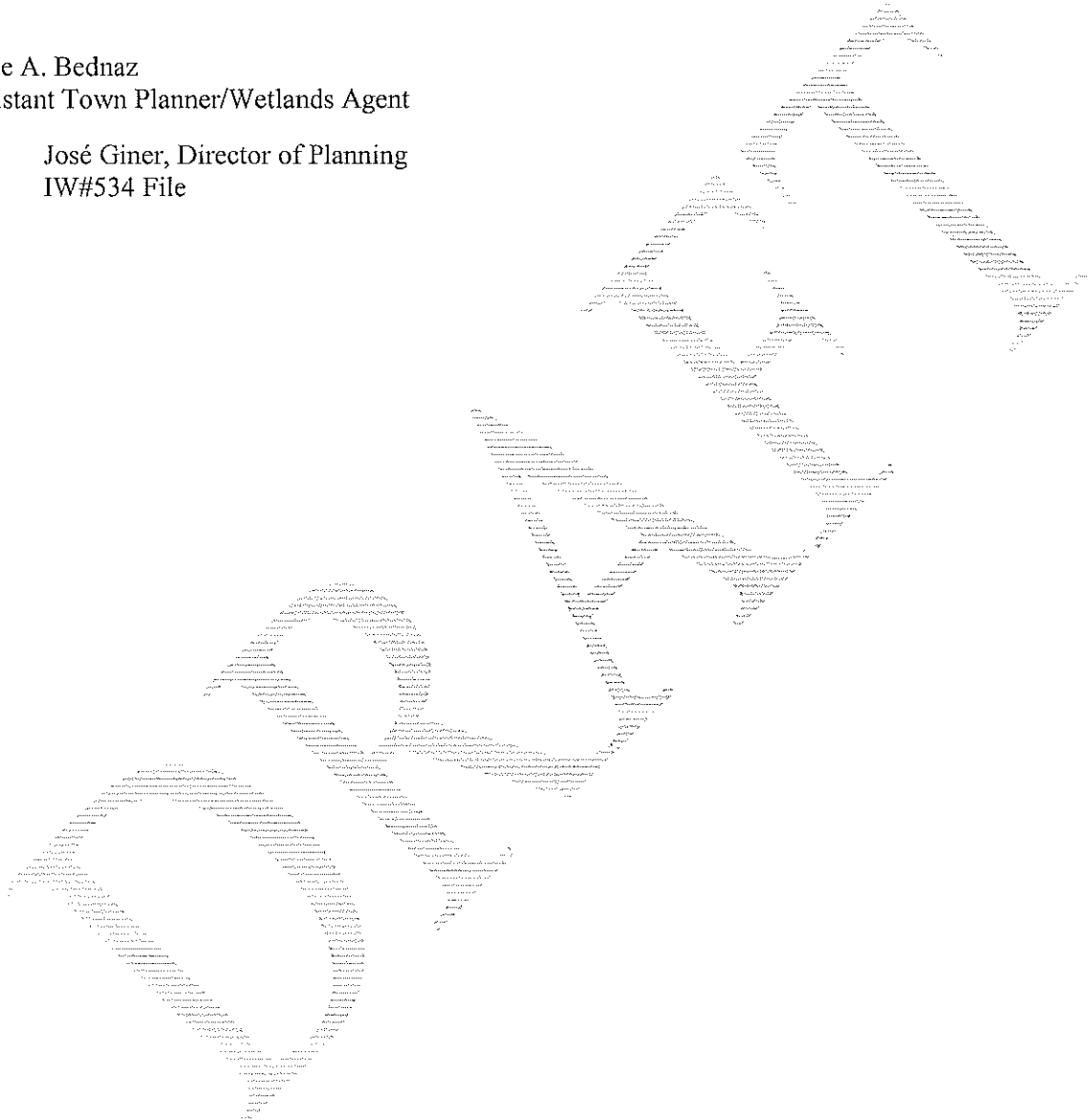
Issuance of the Inland Wetlands and Watercourses Agency permit does not abrogate the responsibility to obtain permits that may be necessary from other agencies at the local, state or federal level prior to commencing your project.

Should you have any questions regarding the contents of this letter, please feel free to contact me at 253-6358.

Sincerely,

Katie A. Bednaz
Assistant Town Planner/Wetlands Agent

cc. José Giner, Director of Planning
IW#534 File



Memo

To: Enfield Planning and Zoning Commission
From: Enfield Inland Wetlands and Watercourses Agency
CC:
Date: April 6, 2010
Re: IW# 534 – South Road Residential/Commercial Development – Enfield Properties

The Inland Wetlands and Watercourses Agency (IWWA) has approved IW#534 application submitted by Enfield Properties to construct two office buildings and five residential apartment buildings at 153 South Road and on adjacent lots (Map 55, Lots 80, 93 & 99), within the regulated area. This application will also require a Site Plan Approval from the Planning and Zoning Commission.

As part of our approval, condition #27, the IWWA has specified the following.

“Mitigation has been proposed that includes rotational mowing of the open field area to the south of the commercial development so that it is maintained. The schedule for this mowing is included in REMA Ecological Services, LLC March 16, 2010 letter report regarding “Mitigation Monitoring, Post-Construction Vegetation Management and Release of Biological Control for Purple Loosestrife”. This mitigation is designed to continue for the life of the development, which in most cases will continue beyond the validity of this approval. Therefore, it is recommended that this mitigation also be included on the site plan approval by the Enfield Planning and Zoning Commission (PZC). A memo requesting such has been submitted to the PZC from the IWWA.”

As you may be aware, IWWA approvals according to Chapter 440, Section 22a-42a(d)(2) which states that IWWA approvals are valid for a period of five years with the option for approval extensions, only if requested by the permit holder. Conversely, a Site Plan Approval in accordance with Section 9.10.9 of the Town of Enfield Zoning Regulations provides for a site to be maintained as approved without

a time limit. Making the Site Plan Approval process the most appropriate vehicle for long-term site maintenance items.

The project has been approved with the understanding that the rotational mowing in the field areas will be conducted as mitigation for project impacts to resource areas. Mowing has been proposed to maintain wet meadow habitat which will maintain habitat diversity on the site post development. In addition, when a forest borders open fields, is beneficial to wildlife in that provides grazing and hunting habitat immediately adjacent to forested cover from predators.

Therefore, the IWWA is respectfully requesting that the PZC consider including the above condition as part of the PZC Site Plan Approval so that the condition may be enforceable for the life of the development.

Thank you in advance for your consideration in this matter.

